National Conference on

Multidisciplinary Research in Science and Technology

for Healthy Lifestyle Management

NCMRST–2020

Friday, 24th January 2020

SOUVENIR

Organized by

The Berar General Education Society's

Shri R.L.T. College of Science, Akola

Civil Lines, Akola, Maharashtra - 444 001

Re-accredited by NAAC with 'A' Grade, CGPA-3.12 (3rd Cycle)
Recognised by Government of Maharashtra
Affiliated to Sant Gadge Baba Amravati University, Amravati
Phone - 0724-2415480, Fax - 0724-2415650
E-mail - rltcollegeakola@gmail.com, Website - www.rltsc.edu.in

In association with

Microbiologist's Society, India
Amravati University Chemistry Teachers' Association, Amravati
Amravati University Physics Teachers' Association, Amravati

In collaboration with

Aayushi International Interdisciplinary Research Journal (AIIRJ)

ISSN-2349-638X

The Berar General Education Society, Akola

Executive Committee

Dr. R.B. Heda
President

Adv. Motisingh Mohta
Hon. Secretary

Shri Vijaykumar Toshniwal
Sr. Vice President

Dr. Ravindra Jain
Jr. Vice President

Shri Sharad Chaware
Jt. Secretary

Adv. P.W. Agrawal
Executive Member

Prof. S.R. Amraotikar
Executive Member

Dr. S.R. Baheti
Executive Member

Sau. D.M. Chaudhary
Executive Member

Adv. A.R. Gupta
Executive Member

Prof. V.T. Hajare
Executive Member

Shri P.N. Maheshwari
Executive Member

Shri V.R. Panpaliya
Executive Member

Er. A.G. Paranjape
Executive Member

Shri Avinash Sureka
Executive Member

Shri Anilkumar Tapadia
Executive Member

Invitee Members

Dr. R.D. Sikchi, Principal
Sitabai Arts, Commerce & Science College, Akola

Dr. V.R. Kodape, Off.Principal
Shri K.N.G. Arts & Commerce College, Karanja

Dr. S.G. Chapke, Principal
Smt. L.R.T. College of Commerce, Akola

Dr. V.D. Nanoty, Principal
Shri R.L.T. College of Science, Akola

Prof. G.V. Egaonkar, Off.Principal
Shri Nathmal Goenka Law College, Akola

Mr. S.S. Chandanbatve, H.M.
N.M. Chaudhari Vidhyalaya, Akola

Sau. Ashwini Deshpande, H.M.
J.C. Digital Eng. School, Akola

Dr.Mrs. Jyoti H. Lahoti
Teaching Staff Representative

Shri Pankaj Agrawal
Non-Teaching Staff Representative

Shri Radhakisan Laxminarayan Toshniwal College of Science, Akola

Vision

"To become one of the best educational institutions in the country, aspiring for national recognition of excellence through teaching, learning, research and extension in the field of science and technology."

Mission

Shri Radhakisan Laxminarayan Toshniwal College of Science dedicates itself to the cause of science education and propagation of scientific temper among the students, it seeks to mould a student into a multifaceted person with a pragmatic mind and a humane out look capable of facing the challenges of the 21st century. Shri R.L.T. College expects every student entering its portal to be a disciplined, hardworking, well read member of the community ready to give his best to the country.

National Conference on

Multidisciplinary Research in Science and Technology

for Healthy Lifestyle Management

NCMRST–2020

Friday, 24th January 2020

Organized by

The Berar General Education Society's

Shri R.L.T. College of Science, Akola

In association with

Microbiologist's Society, India
Amravati University Chemistry Teachers' Association, Amravati
Amravati University Physics Teachers' Association, Amravati

Editor-in-Chief

Dr. Pradip P. Deohate
Associate Professor
Department of Chemistry

●

Associate Editors

Dr. Pravin R. Kawle
Assistant Professor
Department of Chemistry

Mr. Shailendra V. Madavi
Assistant Professor
Department of Botany

In collaboration with

Aayushi International Interdisciplinary Research Journal (AIIRJ)

National Conference on

Multidisciplinary Research in Science and Technology

for Healthy Lifestyle Management

NCMRST–2020

The Berar General Education Society's

Shri R.L.T. College of Science, Akola

Patrons

Dr. Rajkumar B. Heda
Hon'ble President

Dr. Murlidhar G. Chandekar
Hon'ble Vice Chancellor, S.G.B.A.U., Amravati

Adv. Motisingh G. Mohta
Hon'ble Hon. Secretary

Shri Vijaykumar S. Toshniwal
Hon'ble Sr. Vice President

Dr. Ravindra C. Jain
Hon'ble Jr. Vice President

Shri Sharad A. Chaware
Hon'ble Jt. Secretary

Adv. Pramod W. Agrawal
Sau Devyani M. Choudhary
Shri Pavan N. Maheshwari
Shri Avinash B. Sureka

Prof. Shrikrushna R. Amraotikar
Adv. Ajaykumar R. Gupta
Shri Vijaykumar R. Panpaliya

Dr. Satyanarayan R. Baheti
Prof. Vishwanath T. Hajare
Er. Abhijeet G. Paranjape
Shri Anilkumar S. Tapadia

Hon'ble Executive Members of the B.G.E. Society, Akola

Convener

Dr. Vijay D. Nanoty
Principal, Shri R.L.T. College of Science, Akola

Co-Convener

Dr. Umesh K. Bhalekar

Organizing Secretaries

Dr. Rajesh D. Chandrawanshi
Dr. Sushil M. Nagrale
Dr. Poonam T. Agrawal

Treasurer

Mr. Ram G. Chavan

Joint Secretaries

Mrs. Vaishali N. Badgujar
Dr. Sujata B. Tadam

Dr. Rajendra L. Rahatgaonkar
IQAC Co-ordinator

Mr. Mangesh R. Ubale
Mr. Prashant P. Gedam

National Advisory Committee

Dr. R. S. Jaipurkar, Amravati
Dr. M.G Bodhankar, Pune
Dr. V. S. Jamode, Amravati
Dr. O. S. Sarate, Lucknow
Dr. P. D. Lokhande, Pune
Dr. P. R. Bhagat, Vellore
Dr. C. N. Khobragade, Nanded
Dr. P. M. Tumane, Nagpur
Dr. S. J. Sharma, Nagpur
Dr. P. R. Thorat, Barshi
Dr. K. D. Rithe, Nagpur
Dr. S. T. Ingle, Jalgaon

Dr. T. R. Deshmukh, Amravati
Dr. A. M. Deshmukh, Osmanabad
Dr. K. M, Kulkarni, Pune
Dr. R. S. Rajuskar, Pune
Dr. P. S. Wakte, Parbhani
Dr. N. M. Dongarwar, Nagpur
Dr. M. V. Thakare, Ahmedabad
Dr. S. B. Kasbekar, Nagpur
Dr. S. B. Zade, Nagpur
Dr. J. M. Chatur, Yavatmal
Dr. D. S. Dhote, Amravati
Dr. S. D. Patankar, Nagpur

Dr. F. C. Raghuwanshi, Amravati
Dr. R. K. Sharma, New Delhi
Dr. G. S. Khadekar, Nagpur
Dr. A. B. Ade, Pune
Dr. S. S. Zade, Kolkata
Dr. V. V. Polshettiwar, Mumbai
Dr. R. Kasambe, Mumbai
Dr. D. P. Gogle, Nagpur
Dr. T. M. Karade, Nagpur
Dr. A. M. Asanare, Amravati
Dr. M. B. Wadekar, Gadchiroli
Dr. R. S. Awasthi, Latur

National Conference on

Multidisciplinary Research in Science and Technology

for Healthy Lifestyle Management

NCMRST–2020

The Berar General Education Society's

Shri R.L.T. College of Science, Akola

Local Advisory Committee

Dr. V. G. Thakare, Amravati
Dr. S. G. Chapke, Akola
Dr. A. S. Aswar, Amravati
Dr. J. M. Saboo, Akola
Dr. I. A. Raja, Akola
Dr. Y. B. Gandole, Dhamangaon
Dr. S. S. Deshmukh, Amravati
Dr. R. A. Gulhane, Karanja Lad
Dr. N. S. Kulkarni, Washim
Dr. A. B. Lad, Yavatmal
Dr. M. R. Kherde, Amravati
Dr. S. P. Yawale, Amravati
Dr. A. R. Deshpande, Akola
Dr. A. S. Pethe, Akola
Dr. D. S. Dabhade, Washim
Dr. P. S. Kokate, Akola
Dr. V. B. Bhagat, Akot
Dr. P. S. Pande, Akola
Mr. R. V. Salodkar, Akola
Dr. C. S. Ukesh, Amravati
Dr. S. P. Wagh, Akot
Dr. G. N. Budhalani, Dhamangaon
Dr. A. S. Sonone, Akola

Dr. P. R. Rajput, Karanja Lad
Dr. R. D. Sikchi, Akola
Dr. P. B. Raghuwanshi, Amravati
Dr. D. R. Gawande, Wanoja
Dr. C. M. Jadhao, Shegaon
Dr. V. R. Kodape, Karanja Lad
Dr. S. D. Thakur, Amravati
Dr. S. D. Katore, Amravati
Dr. S. K. Omanwar, Amravati
Dr. G. N. Chaudhari, Amravati
Dr. J. A. Tidke, Amravati
Dr. S. V. Dudul, Amravati
Dr. V. G. Gawande, Amravati
Dr. S. P. Joshi, Amvarati
Dr. N. B. Raut, Amravati
Dr. S. K. Devade, Akola
Mr. D. B. Bobade, Chikhali
Dr. A. M. Metkar, Akola
Dr. M. M. Dhore, Akot
Dr. R. P. Sonekar, Khamgaon
Dr. K. N. Puri, Amravati
Dr. Y. S. Patil, Shegaon
Dr. A. S. Raut, Akola

Dr. R. M. Bhise, Akola
Dr. S. P. Rothe, Akola
Dr. A. M. Garode, Chikhali
Dr. D. N. Vyas, Akola
Dr. R. A. Mishra, Yavatmal
Mr. G. V. Egaonkar, Akola
Dr. P. B. Raghuwanshi, Amravati
Dr. V. M. Thakare, Amravati
Dr. U. S. Patil, Amravati
Dr. A. B. Moharil, Amravati
Dr. G. G. Muley, Amravati
Dr. V. B. Bhatkar, Amravati
Dr. V. M. Patil, Akola
Dr. S. M. Padhye, Akola
Dr. P. S. Dhabe, Akola
Mr. K. K. Pathan, Khamgaon
Dr. S. G. Shende, Akola
Dr. G. V. Korpe, Akola
Dr. P. P. Ade, Akola
Dr. N. V. Phirke, Amravati
Dr. P. E. Ajmire, Khamgaon
Dr. V. A. Kamble, Dhamangaon
Dr. M. V. Shirbhate, Akola

Local Organizing Committee

Dr. A. S. Sawarkar
Dr. S. R. Kohchale
Dr. H. S. Malpani
Mr. V. D. Deotale

Dr. P. P. Deohate
Dr. K. M. Heda
Mr. S. V. Madavi
Ms. S. N. Gawande

Mr. R. D. Chaudhari
Dr. A. A. Sangole
Dr. R. P. Joshi
Mr. A. B. Khedkar

Dr. P. M. Khadse
Dr. A. G. Sarap
Dr. R. M. Agrawal
Mr. S. C. Zyate

Dr. P. R. Kawle
Mr. R. B. Ghayalkar
Dr. S. L. Munde
Mr. S. R. Jaiswal

National Conference on

Multidisciplinary Research in Science and Technology

for Healthy Lifestyle Management

NCMRST–2020

The Berar General Education Society's

Shri R.L.T. College of Science, Akola

Sub-Committies

Reception Committee
Dr. V.D. Nanoty
Dr. U.K. Bhalekar
Mr. R.G. Chavan
Dr. R.D. Chandrawanshi
Dr. S.M. Nagrale
Mrs. V.N. Badgujar
Dr. P.T. Agrawal
Mr. M.R. Ubale
Dr. S.B. Tadam
Dr. R.L. Rahatgaonkar
Mr. P.P. Gadam
Mr. D.J. Wankhade
Mr. V.S. Alane

Registration Committee
Dr. A.A. Sangole
Mr. S.V. Madavi
Dr. R.P. Joshi
Mr. S.C. Zyate
Mr. S.R. Jaiswal

Accomodation and Transport Committee
Dr. R.L. Rahatgaonkar
Dr. A.G. Sarap
Dr. S.R. Mhatre
Shri G.B. Giri

Scientific Session Committee
Mrs. V.N. Badgujar
Dr. K.M. Heda
Dr. H.S. Malpani
Ms. S.N. Gawande

Hospitality/Catering Committee
Dr. R.D. Chandrawanshi
Mr. M.R. Ubale
Dr. S.R. Kohchale
Mr. A.B. Khedkar
Mr. D.J. Wankhade
Mr. C.V. Ahirkar

Inaugural/Valedictory Anchoring Committee
Dr. P.R. Kawle
Dr. S.R. Kohchale
Dr. S.B. Tadam
Dr. R.P. Joshi

Stage Arrangement and Audio-Visual Committee
Mr. R.D. Chaudhari
Mr. R.B. Ghayalkar
Dr. S.L. Munde
Mr. D.S. Vidyasagar

Oral Presentation Committee
Dr. R.D. Chandrawanshi
Dr. A.S. Sawarkar
Mr. S.C. Zyate
Dr. K.R. Lathi

Poster Presentation Committee
Mrs. V.N. Badgujar
Dr. P.M. Khadse
Mr. P.P. Gedam
Mr. V.D. Deotale
Dr. R.M. Agrawal

Paper Publication Committee
Dr. R.D. Chandrawanshi
Dr. S.M. Nagrale
Dr. P.P. Deohate
Dr. P.T. Agrawal

Souvenir Publication Committee
Dr. S.M. Nagrale
Dr. P.P. Deohate
Dr. P.R. Kawle
Mr. S.V. Madavi

Publicity Committee
Mr. A.B. Khedkar
Mr. K.Y. Patil

DR. MURLIDHAR CHANDEKAR
M.COM., M.Phil., Ph.D
VICE-CHANCELLOR

SANT GADGE BABA
AMRAVATI UNIVERSITY
AMRAVATI - 444 602
MAHARASHTRA (INDIA)

NAAC Accredited at the 'A' level

Date : 4 JAN 2020

MESSAGE

I am delighted to know that, Shri R.L.T. College of Science, Akola is organizing the National Conference on "Multidisciplinary Research in Science and Technology for Healthy Lifestyle Management (NCMRST-2020)" on 24th January 2020 in association with Microbiologist's Society, India, Amravati University Chemistry Teachers' Association, Amravati and Amravati University Physics Teachers' Association, Amravati.

I appreciate the noble objective of this multidisciplinary conference being to bring together academicians, industrialists, researchers, students and other groups of scientific community on to a common platform towards cross fertilization of knowledge enabling them to meet the national challenges.

I am sure that, this conference will strengthen capabilities of all the participants and promote them towards the future advancement of research in science and technology for healthy lifestyle management. I hope that, the deliberations during the conference will prove a step forward in enhancing the efficiency of researchers and experts working in the field of science and technology.

I congratulate the organizing committee members of NCMRST-2020 and appreciate their endeavor to make this conference a grand success.

(Dr.Murlidhar Chandekar)

Phone : Office - 0721 - 2662373, Resi. 0721 - 2662108, 2662093, Fax No. 0721 - 2662135, Gram : sgbamuni
E-mail : vc@sgbau.ac.in Website : www.sgbau.ac.in

DR. RAJESH S. JAIPURKAR
M.Sc. (Tech.), Ph.D.
PRO-VICE- CHANCELLOR

SANT GADGE BABA
AMRAVATI UNIVERSITY
AMRAVATI-444 602
MAHARASHTRA (INDIA)

Accredited by NAAC at level 'A'

No..SGBAU/PVC/ 151 /2020
Date : 6/1/2020

MESSAGE

I am glad to note that, Shri R.L.T. College of Science, Akola is organizing the "National Conference on Multidisciplinary Research in Science and Technology for Healthy Lifestyle Management" (NCMRST-2020) on 24th January 2020 and also celebrating its "Golden Jubilee Year" of establishment.

I trust that, the conference will be a platform where researchers and scholars from different fields of science and technology in both academic and industry will have an opportunity to interact with each other and learn the state of art development in multidisciplinary areas.

This conference is going to cover all the important areas of research in the field of science and technology. It will help the participants to update knowledge and will give good exposure to some latest developments in this field for healthy lifestyle management. I am sure that, the deliberations being held during the conference will update one and all in the academic institutions, scientific organizations, industries and motivate the young minds of this nation to take up national challenges for the benefit of mankind.

I congratulate Shri R.L.T. College of Science, Akola for organizing this national event and wish all the grand success for NCMRST-2020.

(Dr. Rajesh Jaipurkar)
Pro-Vice-Chancellor

Phone : Office - 0721-2551961 Resi. - 0721-2672702 Fax No. 0721-2662135 Gram : SGBAMUNI
Website : www.sgbau.ac.in E-mail : provc@sgbau.ac.in

Dr. F. C. Raghuwanshi
M.Sc., M.Phil., Ph.D.
Dean
Faculty of Science & Technology

SANT GADGE BABA AMRAVATI UNIVERSITY
AMRAVATI - 444 602
MAHARASHTRA (INDIA)

NAAC Accredited at the 'A' level

Date : 11th January, 2020

MESSAGE

It gives me immense academic pleasure to know that, on the eve of "Golden Jubilee Year"; Shri R.L.T. College of Science, Akola is going to organize the "National Conference on Multidisciplinary Research in Science and Technology for Healthy Lifestyle Management" (NCMRST-2020) on 24th January 2020.

This conference will bring together leading multidisciplinary academicians, researchers and scholars to exchange and share their experiences on all aspects of sustainable development in the field of science and technology. I understand that, this conference enables one and all from various disciplines on to a common platform towards understanding the needs of the nation and fine tune their academic and research activities towards meeting the national objectives.

I am sure that, all the participants will not leave any stone unturned in their efforts to enlighten themselves with the latest scientific and technological innovations and advancements for healthy lifestyle management through this conference.

I congratulate Shri R.L.T. College of Science, Akola for its successful academic journey of 50 golden years and wish all the best to the organizing committee members of NCMRST-2020.

(Dr. F. C. Raghuwanshi)

Dr. R. B. Heda
President
The Berar General Education Society,
Akola

Date : 13th January, 2020

Message

I am extremely happy that, Shri R.L.T. College of Science, Akola established under The Berar General Education Society, Akola is going to organize the "National Conference on Multidisciplinary Research in Science and Technology for Healthy Lifestyle Management" (NCMRST-2020) on 24th January 2020 with the objective of bringing together different groups of scientific community on to a common platform towards understanding the needs in the field of science and technology for healthy lifestyle management.

It's my privilege that, I was the student of 1st batch of B.Sc. Part-I of this college. The "Golden Jubilee" of the college is therefore, an occasion of proud and joy for me.

Modern age is the age of science and technology that has blessed us with many comforts in every sphere of human activity. I hope this conference will provide a platform to researchers and students from various colleges and institutions of our country to present the most recent advancements in innovative materials and devices for sustainable development of human society.

I convey my best wishes to the participants. I am sure that, there will be fruitful interactions between the faculty and participants during this conference and it will result into some constructive output.

I congratulate Shri R.L.T. College of Science, Akola for taking this initiative to organize the conference on occasion of "Golden Jubilee Year" celebration. I extend my best wishes to the organizers for the grand success of NCMRST-2020.

(Dr. R. B. Heda)

Adv. Motisingh G. Mohta
Hon. Secretary
The Berar General Education Society,
Akola

Date : 13th January, 2020

Message

It is a proud privilege that, Shri R.L.T. College of Science, Akola established under The Berar General Education Society, Akola is organizing the "National Conference on Multidisciplinary Research in Science and Technology for Healthy Lifestyle Management" (NCMRST-2020) on 24th January 2020.

On the occasion of "Golden Jubilee Year" of Shri R.L.T. College of Science, Akola, it's a nice initiative by college to organize the multidisciplinary conference with an object to provide a common platform to researchers and academicians for sharing their innovative ideas in the field of science and technology for the betterment of mankind and the society.

I am sure that, this conference will add value to the research activity in the field of science and technology for healthy lifestyle management. Conference provides the unique chance to young researchers to rub shoulders with senior and accomplished scientist. I hope that, participants will avail this opportunity at NCMRST-2020. I am confident that, deliberations during the conference will be helpful to strengthen the knowledge and to enhance the quality of research work.

I congratulate Shri R.L.T. College of Science, Akola for conducting this national scientific event while celebrating its "Golden Jubilee Year". I wish all the success to NCMRST-2020.

M.G. Mohta

(Adv. Motisingh G. Mohta)

From the Desk of Principal and Convener

I am extremely pleased to welcome all the eminent speakers, delegates and participants of the "National Conference on Multidisciplinary Research in Science and Technology for Healthy Lifestyle Management" (NCMRST-2020) organized by Shri R.L.T. College of Science, Akola on 24th January 2020, on the occasion of celebration of its "Golden Jubilee Year" of establishment.

Shri R.L.T. College of Science, Akola was established under The Berar General Education Society, Akola on 1st April 1970 and since then, always keeps itself busy to develop the students through teaching, learning, research and extension in the field of science and technology. The college dedicates itself to the cause of science education and propagation of scientific temper among the students with social commitment and national integration. A journey of 50 years is a long period and it's a momentous occasion for us. Today, the recognition of college as one of the leading educational institutions stems largely from the dedication, devotion, discipline and cooperative efforts of all the past and present stakeholders of this college.

The aim of organizing this conference is to share and enhance the knowledge of researchers in the field of science and technology for healthy lifestyle management. Through this conference, we have tried to provide an opportunity to the participants to listen to the eminent speakers and personalities from different walks of society and to interact with them on to a common platform for exchanging information through the scientific presentations and discussion. The technical programme of conference will consist of a keynote address, invited talks, oral and poster presentations.

It is our privilege to organize this conference. I sincerely thank to Hon'ble Dr. R. B. Heda, President and Hon'ble Adv. Motisingh G. Mohta, Hon. Secretary and all Hon'ble Executive Members of The Berar General Education Society, Akola for allowing and motivating us to organize this national event. I would like to thank Microbiologist's Society, India, Amravati University Chemistry Teachers' Association, Amravati and Amravati University Physics Teachers' Association, Amravati for their support in organizing this conference.

I am obliged to the eminent speakers, delegates, authors, research scholars, teaching, non-teaching staff members and students who contributed in making this conference a grand success and memorable one. I must mention that, the organizing committee has been working hard for the resounding success and meaningful outcome of NCMRST-2020.

Dr. Vijay D. Nanoty
Principal
Shri R.L.T. College of Science, Akola
Convener, NCMRST-2020

From the Desk of Organizing Secretaries



Dear Delegates,

On behalf of the organizing committee, we are very much pleased to welcome you for the "National Conference on Multidisciplinary Research in Science and Technology for Healthy Lifestyle Management" (NCMRST-2020) organized by Shri R.L.T. College of Science, Akola on 24th January 2020.

Shri R.L.T. College of Science, Akola is committed to provide quality education and promote research since its inception. It was desire of our Principal Dr. V. D. Nanoty to celebrate the "Golden Jubilee Year" of the college by conducting some national events and accordingly, the conference is organized with the aim to integrate multidisciplinary research in science and technology for healthy lifestyle management.

The response for attending the conference has been overwhelming from the day of the release of conference brochure is really a joyful experience for us. The conference includes keynote address and invited talks by prominent personalities from various regions of country in addition to both oral and poster presentations by the delegates, research scholars and students. The present conference is a unique opportunity to discuss and explore best practices within the fields of science and technology. We are confident that, this conference will indeed generate a lot of interest among the students to explore and pursue the area of research for healthy lifestyle management.

We must mention that, the organizing committee has been working hard for the success of NCMRST-2020. Recognition should go to the local organizing committee and sub-committee members who have all worked extremely hard for the details of important aspects of the conference programme and overall arrangements. Our special thanks are due to the editors for their dedication and hardwork that has resulted in publication of this beautiful souvenir within stipulated time. Thanks are also due to Prakash Printers, Akola. We are thankful to the editor of "Aayushi International Interdisciplinary Research Journal" (AIIRJ) for collaborating with us to publish the research articles presented in NCMRST-2020.

Lastly, we wish all the delegates a very happy, memorable and scientifically stimulating time in Akola and return home with memorable experiences.

Thanks to all.

Dr. Rajesh D. Chandrawanshi
Dr. Sushil M. Nagrale
Dr. Poonam T. Agrawal
Organizing Secretaries, NCMRST-2020

Acknowledgements

The organizing committee of "National Conference on Multidisciplinary Research in Science and Technology for Healthy Lifestyle Management" (NCMRST-2020) expresses their sincere thanks to the following organizations / associations and agencies for their kind support and financial assistance to make the conference a grand success.

- **Microbiologist's Society, India**
- **Amravati University Chemistry Teachers' Association, Amravati**
- **Amravati University Physics Teachers' Association, Amravati**
- **Digitech Systems, Akola**
- **Jyoti Chemporium, Akola**
- **Siddharth Computers, Akola**
- **Aakanksha Chemicals, Akola**
- **Solanki Enterprises, Pune**
- **Mayuree Enterprises, Akola**
- **Shri Ganesh Scientific Syndicate, Amravati**
- **Hi-Media Laboratories, Mumbai**
- **Shri R.L.T. College of Sci. Sevakanchi Sahakari Pat Sanstha Ltd., Akola**

With Best Compliments From...

Non-Teaching and Supporting Staff Members, Shri R.L.T. College of Science, Akola

Shri K.Y. Patil
Shri V.S. Alane
Shri C.V. Ahirkar
Shri S.J. Tarhale
Shri V.S. Shinde
Shri A.R. Agrawal
Shri P.P. Shegokar
Shri V.K. Kangte
Shri G.P. Sharma
Shri H.A. Umbarkar
Shri S.S. Solanke
Ku. M.V. Deshpande
Shri G.B. Mulatkar
Shri M.M. Kulkarni
Shri S.B. Kulkarni
Shri S.G. Solanke
Smt. S.S. Zatale
Shri S.V. Bhaltilak
Shri S.S. Rakhonde
Shri K.D. Giri
Shri B.D. Bhargade
Shri S.M. Alone
Shri K.S. Shegokar
Shri P.M. Salphale
Shri R.S. Agrawal
Shri A.D. Gawali
Smt. J.A. Gite
Shri G.D. Rajbhoj
Shri G.B. Rothe
Shri P.S. Shegokar
Shri G.B. Ingole
Shri P.S. Murade
Shri A.B. Tayade
Shri D.J. Wankhade
Shri M.R. Amale
Shri V.S. Shegokar
Shri R.B. Chondke
Shri R.S. Dandnaik
Shri D.M. Ghonge
Shri G.B. Giri
Shri S.T. Khandare
Shri M.M. Joshi
Shri C.N. Gaopande
Shri N.M. Umrekar

Index

D-25	MICROWAVE ASSISTED SYNTHESIS AND ANTIMICROBIAL STUDY OF 2-AZETIDINONE DERIVATIVES OF 4-CHLORO ETHYL BENZOATE	Smita Tarale	120
D-26	SEED COAT STUDY AND PRELIMINARY PHYTOCHEMICAL ANALYSIS OF *TRACHYSPERMUM AMMI* (L.) SEEDS OF APIACEAE (UMBELLIFERAE)	P. P. Ulhe	120
D-27	PHYTOCHEMICAL SCREENING AND EVALUATION OF ANTI-ARTHRITIC ACTIVITY OF LEAF EXTRACTS OF *DELONIX REGIA*	Ashwini A. Balode Ozasvi Zadokar Minal Kolhe	121
D-28	MQTT BASED RASPBERRY PI HOME AUTOMATION SYSTEM	Mayur Thete Nikita Pulate Ranjana Ubale	121
D-29	SMART ATTENDANCE SYSTEM USING BIO-METRIC IDENTIFIER WITH OLED DISPLAY	Freni Malviya Paulami Nath Panchsheela Kamble	121
D-30	STUDY OF STRUCTURAL AND OPTICAL PROPERTIES OF PVA DOPED WITH $FeCl_3$	R. Risodkar R. Joat	122
D-31	ANALYTICAL SOLUTION OF THE STRESS-FOCUSING EFFECT IN FUNCTIONALLY GRADED HOLLOW SPHERE SUBJECTED TO ELECTROMAGNETIC OR γ- RAY PULSES	D. P. Deshmukh	122
D-32	COMBUSTION SYNTHESIS AND LUMINESCENCE OF RARE EARTH DOPED ORTHO-BORATE PHOSPHORS FOR LIGHTNING AND DISPLAY	K. K. Rathod K. V. Bhakade J. T. Ingle	123
D-33	DIVERSITY OF WALL LIZARDS IN BULDHANA TOWN (MS)	A. C. Thakur	123
D-34	XANES STUDY OF SOME COBALT (II) COMPLEXES OF ALDEHYDES	Jaishree Bhale Mona Gupta Pradeep Sharma A. Mishra	123
D-35	STUDY OF BUTTERFLIES FROM OUTSKIRTS OF MANDEV FOREST UDYAN YAVATMAL DISTRICT-YAVATMAL, MAHARASHTRA	P. W. Chaudhari S. S. Gupta	124
D-36	SPORTS SCIENCE AND SPORT SCIENTIST	Firoz Ansari	124
D-37	ROLE OF BAT GUANO IN BIOREMEDIATION OF AQUATIC ECOSYSTEM	C. M. Bharambe Manohar Narkhede Devshree Sonowane	124
D-38	A REVIEW OF THE GRAPHENE A WONDER MATERIAL IN THE FIELD OF VISION/NANOPARTICLES COMPOSITES SYNTHESIS AND APPLICATIONS	Rohan K. Shirsat	125

NCMRST-2020

Keynote Address

Invited Talks

KA-01

UNDERSTANDING THE LIGHT HARVESTING FUNCTION OF PHYCOBILIPROTEINS BY X-RAY CRYSTALLOGRAPHY AND ITS THERAPEUTIC APPLICATIONS

Datta Madamwar

UGC-BSR Faculty Fellow, Post Graduate Department of Biosciences, UGC Centre of Advanced Study, Sardar Patel University, Vallabh Vidyanagar-388120, Gujarat, India

E-mail - *datta_madamwar@yahoo.com*

Phycobiliproteins (PBPs) are water-soluble light harvesting proteins found in cyanobacteria and red algae. They facilitate efficient capturing and controlled-transfer of sunlight energy downhill towards photosystem by holding the water insoluble chromophores very precisely in aqueous cell environment. Crystal structures of various sub-classes (phycoerythrin, phycocyanin and allophycocyanin) of phycobiliproteins from fresh water and marine cyanobacteria have been solved using X-ray crystallography in order to understand the underlying light harvesting principle. The crystal structure of unique single peptide phycoerythrin (PDB ID: 3MWN), produced under prolonged starvation condition have been solved, which depicts no role of first 31st N-terminal amino acids in structure assembly and functionality of phycoerythrin. The geometry and arrangement of chromophores and the energy transfer pathway in marine phycoerythrin (showing distinct sequence features) have been recognized through solution of its high-resolution crystal structure (PDB ID: 5AQD, 5FAB). Crystal structure of scarily found phycobiliprotein, allophycocyanin (which makes core of cyanobacterial light harvesting complex) is solved (PDB ID: 4RMP). This structure described the importance of some 'amino acid substitutions' in marine cyanobacteria providing the extra hydrophobic environment to the chromophore. Moreover, some therapeutically important properties (including antioxidant, anti-aging and anti-Alzheimeric activity) of phycobiliproteins that have been noticed in eukaryotic cell line and *Caenorhabditis elegans* model, is validated using homology-based protein structure modelling and protein-proteins docking.

IT-01

MODERN TRENDS IN THE DESIGN OF PULSED INSTRUMENTATION IN ULTRASONICS

Satish Sharma

Department of Electronics and Computer Science, Rashtrasant Tukadoji Maharaj, Nagpur University, Nagpur-440 033, Maharashtra, India

E-mail - *hodelectronic.nagu@mail.gov.nic.in, sharmasat@gmail.com*

In recent days, instruments with modern designs, high accuracy, reliability and flexibility are in demand for the non-destructive characterization of materials. Ultrasonic velocity and attenuation are the basic measurement parameters used to evaluate various molecular phenomena and physical characteristics of materials and formulate appropriate theories. Hence, precise measurement of these parameters comes to be of immense help in the studies.

Among the ultrasonic pulse techniques, sing-around and pulse-echo techniques have gained the most popularity over the years, ever since its inception during the Second World War, in the detection of the enemy submarines. It is based on the sending a narrow band pulse in the medium and then detecting it after the reflection from the target.

Sing around technique is widely used for measurements of ultrasonic velocity in liquids and solids. This technique is simple, convenient, versatile and highly accurate for absolute and relative ultrasonic velocity measurements. On the other hand, the pulse-echo technique has several advantages over other pulse techniques, such as repeatability, reliability, accuracy, use of single transducer and simplicity of implementation, in the measurement of both ultrasonic velocity and attenuation.

Keeping in view the *Make in India, Make in Maharashtra and Make in Nagpur* initiatives of the government, we have developed high quality analytical research grade measurement instrumentation facilities such as: Virtual Sing around system for precise Ultrasonic velocity measurements, PC-based Ultrasonic Attenuation recorder, Micro Controller based Ultrasonic Characterization system, Pulser-receiver card based flaw detector and NDT System, Control of Virtual Instruments using wireless links, Robotic-based measurements systems and touch screen based ultrasonic instruments, at the Department of Electronics and computer Science, RTM Nagpur University, Nagpur. These systems have been designed using the technical expertise regarding the electronic system design and manufacturing (ESDM) from the locally available electronic components. The working prototype of these electronic measurement systems have been developed by the research scholars as a part of their research work, in our laboratory. The data acquisition cards have been designed using embedded systems and tested on various platforms. The facilities of the in-house designed instruments have been utilized for the ultrasonic measurements (velocity and attenuation) in standard liquids, solids, liquid mixtures, nano materials and gels.

IT-02

BIO-INSPIRED PORPHYRIN/PHTHALOCYANINE PHOTO-CATALYSTS FOR SUSTAINABLE DEVELOPMENT

Pundlik Rambhau Bhagat
Department of Chemistry, School of Advanced Science, Vellore Institute of Technology, Vellore-632014, Tamil Nadu, India
E-mail - *pundlik.rb@vit.ac.in, drprbhagat111@gmail.com*

Nature displays a magnificent beauty by sprawling various pigments surrounding to us, like chlorophyll in green plants, carotenoids in the form of orange, red, yellow colours and flavonoid pigments meaning “flower blue” as anthocyanins. Moreover, porphyrin, a class of water-soluble, nitrogenous biological pigments (bio-chromes) which exhibit macro-cyclic framework nature, is able to execute the most crucial life processes- activate and/or transport molecular oxygen in animals and convert sunlight in plant photosynthetic systems. The porphyrin word is originated from the Greek word ‘PORPHURA’ meaning purple, and all porphyrins are intensely coloured.

Accordingly, Porphyrins involve an important class of molecules that help nature in a variety of means. The specificity and selectivity presented by porphyrins in each of their biological applications approves it to be prominently influenced by the nature of the protein network round the porphyrin centre [1-2]. Today exploration of biomimetic reactions is very powerful and a range of synthetic porphyrins and their metallo-derivatives have been established to be competent model systems for many life processes and enzyme actions [3-4].

The distinct characters of porphyrin comprise rigid, planar geometries, high stability at higher temperatures or pH variations, easy redox properties, characteristic symmetry, easily tuneable electronic and admirable photosensitization. The porphyrin macrocyle is a flexible platform for additional substitutions and designing of pre-organized functional materials, and emerged as a fascinating field of research [5-6].

Such exciting fabrications, beside their inherent intellectual stimuli, are of prominence in many fields of chemistry and technology, viz. material chemistry, catalysis, photodynamic therapy and light harvesting (DSSC), optoelectronics, water purification, biomass transformation and sensor applications etc. The competence of a porphyrin catalyst can be augmented by tailoring different substituents at the periphery of the macrocycle at both the β and meso positions. This permits for the fine-tuning of their optical and electrochemical properties, catalytic activity and biomass transformation to get industrially important value added and bio-fuel compounds.

References

[1] Lash, Timothy D., "Origin of aromatic character in porphyrinoid systems", *Journal of Porphyrins and Phthalocyanines*, **2011**, 15 (11n12), 1093-1115, doi:10.1142/S1088424611004063.
[2] Savitsky, A.; Mobius, K., “Photochemical reactions and photoinduced electron-transfer processes in liquids, frozen solutions, and proteins as studied by multifrequency time-resolved EPR spectroscopy”, *Helv. Chim. Acta*, **2006**, *89*, 2544-2589.
[3] Milanesio, M.E.; Alvarez, M.G.; Durantini, E.N., “Methoxyphenylporphyrin derivatives as phototherapeutic agents”, *Curr. Bioact. Compd*., **2010**, *6*, 97-105.
[4] Jurow, M.; Schuckman, A.E.; Batteas, J.D.; Drain, C.M., “Porphyrins as molecular electronic components of functional devices”, *Coord. Chem. Rev*., **2010**, 254, 2297-2310.

[5] Simoes, M.M.Q.; Gonzaga, D.T.G.; Cardoso, M.F.C.; Forezi, L.S.M.; Gomes, A.T.P.C.; Silva, F.C.; Ferreira, V.F.; Neves, M.G.P.M.S.; Cavaleiro, J.A.S. Carbene, "Transfer reactions catalysed by dyes of the metalloporphyrin group", *Molecules*, **2018**, 23, 792.

[6] Nthabeleng, Hlapisi; Tshwafo E. Motaung; Linda Z. Linganiso; Oluwatobi S. Oluwafemi; Sandile P. Songca, "Encapsulation of gold nanorods with porphyrins for the potential treatment of cancer and bacterial diseases: a critical review", *Bioinorganic Chemistry and Applications*, **2019**, Article ID 7147128, https://doi.org/10.1155/2019/7147128.

IT-03

INSIGHT OF PALAEOBOTANICAL RESEARCH ON THE COAL DEPOSITS OF WARDHA-GODAVARI VALLEY "THEIR PALAEO-PALYNOLOGY, COAL PETROLOGY AND DEPOSITIONAL ENVIRONMENT"

Omprakash S. Sarate

Former Scientist – F, Birbal Sahni Institute of Palaeosciences, Lucknow-226007, Uttar Pradesh, India

E-mail - *ossarate@yahoo.co.in*

Palaeobotany is the most fascinating sub-discipline of botany. It traces origin of plant life on the earth and its subsequent evolution through time span. The main theme of the discussion will revolve through Permian period during which the Indian Gondwana coals have been deposited. We will also try to understand the significance of palynoflora recorded from the lower Gondwana sediments of the study areas in interpreting the then prevailing depositional conditions. The process of coalification, coal petrographic study and its impact on evaluating economic as well as coal bed methane potentials will be covered. Similarly, the methodology adopted for coal palynology and coal petrography shall also be discussed.

NCMRST-2020

Abstracts

Section-A

Biological, Chemical and Agricultural Sciences

A-01

COPPER-CATALYZED OXIDATIVE CLEAVAGE OF PASSERINI AND UGI ADDUCTS IN BASIC MEDIUM YIELDING α-KETOAMIDES

Anirban Ghoshal, Mayur D. Ambule, Revoju Sravanthi, Mohit Tanej and Ajay K. Srivastava
CSIR- CDRI Lucknow
E-mail - *mayurambule@gmail.com*

The aerobic oxidative cleavage of Passerini and Ugi adducts in the presence of base and copper(I) iodide is studied in detail. The oxidative cleavage yields α-ketoamides along with acids and amides from Passerini and Ugi adducts respectively. Mechanistic investigations revealed that the reaction proceeds *via* a radical pathway involving molecular oxygen. Control experiments with ^{18}O-labeled Passerini adduct confirmed that molecular oxygen is the source of oxygen in α-ketoamides. A variety of Passerini and Ugi adducts were studied to explore the effect of substitution. Overall, the present study provides an insight into the reactivity of Passerini and Ugi adducts in strong basic conditions along with a method to prepare α-ketoamides.

A-02

SOME THERAPEUTIC PLANT IN PATALKOT, TAMIA, CHHINDWARA DISTRICT, MADHYA-PRADESH

Omkar Bawistale[1] and Brajesh Shau[2]
[1]Department of Botany, Govt. College Sausar, Dist.-Chhindwara, MP
[2]Range Officer of Chhindi (Patalkot) Tamia, Dist.-Chhindwara

Extensive ethnomedicinal survey was carried out to document the precious indigenous healthcare practices prevalent among the different ethnic groups of Patalkot, Tamia, Chhindwara District, Madhya Pradesh, India. These people belonging to primitive or aboriginal culture possess a good deal of information about medicinal utility of plant species. During the survey, it was noted that plant parts, used by the tribals to cure various diseases and disorders. Indigenous healthcare practices, provide low cost alternatives, where western healthcare services are not available or are too expensive. A list of plant species along with their parts used and the mode of administration for effective control in different ailments are given.

A-03

SYNTHETIC STUDIES OF NOVEL PER-*O*-ACETYL GLYCOSYL THIOCARBAMIDES

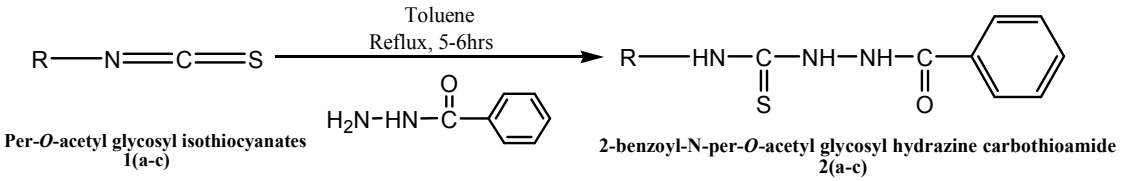
Riddhi P. Nayak and Anvita D. Mangte
Shree P. M. Patel Institute of P.G. Studies and Research in Science, Anand-388001, Gujarat
E-mail - *riddhinayak88@gmail.com*

The importance of carbohydrates in living system and medicine is growing due to their biological and pharmacological relevance. Carbohydrates are ubiquitous and perform a wide array of biological roles. Per-*O*-acetyl glycosyl isothiocyanate proven to be excellent intermediate and it have been used for the preparation of a variety of carbohydrate derivatives of synthetic, biological and pharmaceutical interest.

Thiocarbamide is important organic compound because it is useful as a precursor in the synthesis of many heterocyclic derivatives. The chemistry of Per-*O*-acetyl glycosyl thiocarbamide

is extensively developed due to its wide applications in industry as carbohydrate based detergent, and in medicine as anticancer agents and antifungal agents. In view of applications of N-glycosylated compounds in medicinal chemistry and in many other ways, we herein report the synthesis novel sugar thiocarbamides.

New Per-*O*-acetyl glycosyl thiocarbamides were synthesized by the condensation of Per-*O*-acetyl glycosyl isothiocyanate with benzhydrazide. The newly synthesised compounds were characterised by using the IR, ^{1}HNMR and MASS spectral studies.



A-04

SMART POLYHOUSE MONITORING AND CONTROLLING USING RASPBERRY-Pi

Shital Gawade, Aniket Kothawale and Supriya Dhumal
T. C. College, Baramati, India

We know that economy of India is mostly depends on agriculture since it is an agricultural country. India ranks second worldwide in agriculture. Tremendous growth of population has impact on increasing the demand of food so main thing is that to increase productivity of food, and this enhances using greenhouse method of agriculture since it has many advantages .Here we developed polyhouse automation using IoT which reduces the wastage of water, use of fertilizers, manpower and improves crop yield and quality of crop as well as soil. The objectives of this system is to monitor crop field, record, examine greenhouse parameters namely temperature, light, humidity, soil quality and analyzed it, also provide automated water supply depending on soil moisture. System developed by using embedded device Raspberry pi, IoT technology and cloud.

A-05

CONCEPTS IN CHEMISTRY WITH PERSPECTIVE OF COMMUNICATION RESEARCH

Bajirao B. Ahire
Post Graduate Department of Chemistry, N.V.P. Mandal's Arts, Commerce and Science College, Lasalgaon, Nashik, Maharashtra, India
E-mail - *ahirebb07@rediffmail.com*

Communication term refers to information transfer across either space or time where the later refer to any storage device. This will help to present ideas in the subject of choice in very interesting manner. There were many avenues in the subject to work on and research topic and concepts can be varied according to the research interest, direction and requirements of researchers. Present investigation relates with the basic study of chemistry and level of understanding. Research on student experiences with chemistry as one of the subject in the classroom informs the discussion of participant perception, which often originates in the classroom. Although formal and informal education environments are different, there is little research on chemistry in informal way. However, relevant broad topic from formal chemistry education can be used to aid chemists interested in designing student activities to communicate

chemistry, spreading of new and innovative knowledge to the target group using suitable method. A booklet was prepared on reactivity property and seen effectiveness based on designed questionnaire. Gathering and marshaling of collected data, which is necessary for making conclusions. Present paper reveals that significant level was judge by control and experimental group.

A-06

PHYSICO-CHEMICAL ASSESSMENT OF BORE WATER FROM MALEGAON TAHSHIL OF WASHIM DISTRICT (MS)

S. B. Gaikwad[1*], V. B. Bhise[2], S. M. Shende[3], S. N. Tayade[4], S. G. Kalane[1] and R. E. Khadse[1]

[1]Department of Chemistry, Late P. G. Arts and Science Mahavidyalaya, Shirpur (Jain), Washim (MS), India
[2]Department of Physics, Late P. G. Arts and Science Mahavidyalaya, Shirpur (Jain), Washim (MS), India
[3]Department of Botany, Late P. G. Arts and Science Mahavidyalaya, Shirpur (Jain), Washim (MS), India
[4]Department of Zoology, Late P. G. Arts and Science Mahavidyalaya, Shirpur (Jain), Washim (MS), India
E-mail - *sbgaikwad33@gmail.com*

Potable water is the most important resource on the earth for overall used with low risk of immediate or long term harm for all living thing. We collected water samples from four different villages (Shirpur (Jain), Medshi, Rajakinhi and Zodga) were subjected to physico-chemical analysis to evaluate the quality water in Malegaon tahshil region of district Washim (Maharashtra). In physico-chemical analysis, various quality parameters are measured including temperature, pH, turbidity, odour, specific conductivity (SC), total dissolved solids (TDS), total hardness(TH), content of calcium (Ca^{2+}), magnesium (Mg^{2+}), chloride(Cl^{-}), sulphate (SO_4^{2-}), iron (Fe), dissolved oxygen (DO), total alkalinity (TA) and Nitrate (No_3^{2-}) concentration present in bore well water. Each parameter was compared with the standard desirable limit prescribed by WHO. The quality of bore well water of four different villages has been investigated and discussed in this paper.

A-07

ALTERNANTHERA SESSILIS L. A TRADITIONAL INDIAN MEDICINAL HERB

Rasika N. Patil and Sahadeo P. Rothe

Department of Botany Shri Shivaji College of Arts, Commerce and Science, Akola (MS)
E-mail - *rasika.707@rediffmail.com*

Food as Medicine is one of the basic concepts of Indian Traditional medicine. This tradition is passed through our generation to generation because of their immense used in various from in day to day life. The Herb is said to be abortifacient, cholagogue, Febrifuge, and galactagogue. An infusion of the entire herb is used as a remedy against intestinal cramps, fever, diarrhea, and dysentery. It is a weed that inhabits many areas of the world. A weed of rice in tropical areas and an agricultural weed that invades disturbed wet areas in tropical and subtropical regions. A rather variable plant, growing upright in dried soils, but becoming prostrate in wetter conditions with the shoots rooting at the nodes.

A-08

STUDY OF MICROWAVE ASSISTED SYNTHESIS AND BIOLOGICAL ACTIVITIES OF SOME PYRIMIDINE LINKED OXADIAZOLE PHARMACOPHORES

Kalpana A. Palaspagar and Pradip P. Deohate*
Department of Chemistry, Shri Radhakisan Laxminarayan Toshniwal College of Science, Akola-444001, India
E-mail - *kpalaspagar31@rediffmail.com, pradip222091@yahoo.co.in*

Pyrimidine has an excellent core structure having diverse pharmacological activities and therapeutic applications. Oxadiazoles also shows remarkable biological activities viz. antimicrobial, antiviral, anti-inflammatory, anti-tuberculosis etc. Pyrimidine nucleus linked with oxadiazole derivatives proved to be versatile drugs in the field of medicinal chemistry with excellent biological activities.

In present work microwave assisted synthesis of (5-aryl/alkylamino-[1,3,4]-oxadiazol-2-yl-methyl)-(4,6-dimethyl-pyrimidin-2-yl)-amines have been carried out. Initially ethyl (4,6-dimethyl-pyrimidin-2-yl-amino)-acetate was prepared by reacting 2-amino-4,6-dimethyl-pyrimidine with ethyl chloroacetate. It was further reacted with hydrazine hydrate to afford (4,6-dimethyl-pyrimidin-2-yl-amino)-acetic acid hydrazide. This hydrazide was then reacted with N-aryl/alkyl isothiocyanates followed by oxidative cyclization using alkaline ethanolic solution of iodine in presence of potassium iodide to afford the respective title compounds with differently substituted pharmacophores. The constitutions of synthesized compounds were delineated on the basis of chemical transformation, elemental analysis, equivalent weight determination and IR, ^{1}H-NMR, mass spectral studies. Progress of the reactions was monitored by TLC. Title compounds were screened for their biological activities.

A-09

PHYTOCHEMICAL ANALYSIS OF ALLIUM URSINUM PLANT FROM CHIKHALDARA USING EXTRACTS OF ACETONE, BENZENE, CHLOROFORM AND DISTILLED WATER

Rajesh P. Ganorkar* and Rupali S. Talegaonkar
Department of Chemistry, Mahatma Fule Arts, Commerce and Sitaramji Chaudhary Science Mahavidyalaya, Warud-444906, Dist.-Amravati (MS), India
E-mail - *rajesh.ganorkar@rediffmail.com*

The plant sample of Allium Ursinum has been studied for phytochemical analysis of extraction in acetone, benzene, chloroform and distilled water using commonly employed precipitation and coloration reactions. Site was selected in Chikhaldara, Dist.-Amravati of Maharashtra State. The plant Allium Ursinum is used in herbal medicine as rich source of phytochemicals with the presence of alkaloid, carbohydrate, cardiac glycosides, quinones, protein, saponin, sterol, tanin, terpenoid, coumarine. Thus this plant can be utilized as an alternative source of useful drug. In future, the plant Allium Ursinum could be used as good pharmaceutical and therapeutic agent.

A-10

STUDIES OF ANTIOXIDANT PROPERTIES OF ANALOGUES OF POLAR FLAVONOID KAEMPFEROL

Ketki D. Bansod[*] and Pradip P. Deohate
Department of Chemistry, Shri Radhakisan Laxminarayan Toshniwal College of Science, Akola-444001, India
E-mail - *ketkipande@rediffmail.com, pradip222091@yahoo.co.in*

Five analogues of polar flavonoid Kaempferol, namely Kaempferol acetate, Kaempferol benzoate, 3,4',5,7-tetra-*O*-benzyl Kaempferol, 3,4',5,7-tetra-*O*-methyl Kaempferol and acetyl Kaempferol have been studied for their antioxidant properties. All the derivatives showed moderate to good antioxidant activity. IC_{50} values for all the analogues have also been determined.

A-11

SYNTHESIS AND STUDY OF ARYL SUBSTITUTED 1,3-THIAZINE AND ITS NANOPARTICLES WITH SPECIAL REFERENCE TO PLANT PATHOGENS OF SOME VEGETABLE CROPS

Chhaya D. Badnakhe[1], P. R. Rajput[2] and D. D. Bhokare[3]
[1]Department of Chemistry, Dr. Manorama and Prof. H.S. Pundkar Arts, Commerce and Science College, Balapur, Dist.-Akola, India
[2]Department of Chemistry, S.S.S.K.R. Innani Mahavidyalaya, Karanja-Lad, Dist.-Washim, India
[3]Department of Microbiology, Shankarlal Khandelwal Arts, Science and Commerce College, Akola, India
E-mail - *chhayadeotalu@rediffmail.com, prsrajput@rediffmail.com, bsagar.skc@rediffmail.com*

The synthesis, spectral analysis and biological activities of 4-phenyl-2-hydroxy-chlorosubstituted-2-imino-1,3 thiazine has been carried out. In this case 4-(2'-hydroxy-3',5'-dichlorophenyl)-6-(4"-nitrophenyl)-2-imino-3,6-dihydro-1,3- thiazine (A) has been screened. The compounds (A) was synthesized from 2'-hydroxy-3,5-dichlorophenyl-4-(4"-nitrophenyl) chalcone (a) by the action of thiourea. The compound (a) was synthesized from 2′-hydroxy-3′,5′-dichloroacetophenone by the action of p-nitrobenzaldehyde in ethanol and 40% NaOH. The nanoparticles of the compounds A has been prepared by using ultrasonic technique. The titled compound and its nanoparticles were assayed for antipathogenic impact against some common crop pathogens viz. - *Aspergillus niger, Pseudomonas lachrymans, Fusarium oxysporum* and *Fusarium solani*.

A-12

SUPPLEMENTARY BIO-NUTRITION IN POULTRY FEED AT EARLY DEVELOPMENT OF HEN'S CHICK WITH REFERENCE TO BONE DEVELOPMENT

R. B. Bahadure
Department of Zoology, Shri Vasantrao Naik Mahavidyalaya, Dharni, Dist. Amravati-444702, India
E-mail - *rameshbahadure531@gmail.com*

This study reveals that the supplementation provided as bio-nutrition in poultry feed at early developmental stages of hen's chick to showed remarkable growth and development. Such as water, protein carbohydrates fats minerals and vitamins are essential to life, growth, production. The morphological observation of development of chicks was taken in the laboratory

condition when they were rearing. The rearing in laboratory condition was observed the development and growth on the basis day to day growth of differentiating groups of chicks.

In the present experimentation, young chicks were provided with normal white grains as a conventional food along with formulated feed supplementation containing with whole molluscan animal and shell crush to the experimental groups and observed for 30 days in the laboratory conditions revealed the betterment of weight over the control chicks with hygiene. It was found that 40-50 % increase in weight was observed after 30 days indicating the overall growth of the birds fed with additional diet particularly to reference with bone.

A-13

SCREENING AND EVALUATION OF SILVER NANOPARTICLES PRODUCING BACTERIA FROM LONAR LAKE, INDIA

Harish S. Malpani* and Sonali C. Bawane
Department of Microbiology, Shri R.L.T. College of Science, Akola-444001, India
E-mail - *harishsmalpani@gmail.com*

Lonar lake is known for unique microbial diversity, which is located at Deccan Plateau of West-central of India. Water and sediment sample from lake were collected and screened for presence of silver nanoparticle synthesis. All isolates were grown and analyzed on Horikoshi medium B. The antibacterial activity of these crude silver nanoparticles produced by alkaliphilic bacteria were studied against pathogenic bacteria such as *Staphylococcus aureus* and *Escherichia coli*. The zone of inhibition shown by isolates code no. W1A, W1B, W1C, and W2B against *S. aureus* and *E. coli* were in the range of 20 mm to 28 mm. The zone of inhibition shown by silver nanoparticles is significant in comparison with traditional antibacterial agents.

A-14

ANALYSIS OF LEAF SAMPLES OF *LEUCAS* SPECIES FROM MAHARASHTRA FOR AVAILABILITY OF MINERALS AND VITAMINS

Deepak K. Koche[1] and Rupali P. Shirsat[2]
[1]Department of Botany, Shri Shivaji College of Arts, Commerce and Science, Akola (MS), India
[2]Department of Botany, Shri Dr. R. G. Rathod Arts and Science College, Murtizapur, Dist- Akola (MS), India

Current scenario of medicinal potential of plant samples indicate, that the availability of minerals in the samples also contributes in their properties and health benefit in general. The present study is focused on the mineral analysis of leaf samples of *Leucas* species (*Leucasaspera, Leucascephalotes, Leucasmartinicensis, Leucasindica*and*Leucasstrita*) from Maharashtra state. The results showed that all the samples are rich in minerals and possesses highest amount of Zinc followed by Iron and significant amount of other minerals analyzed. The leaf extracts of *L. aspera* showed highest values for Iron and zinc content followed by *L. cephalotes*. All the samples were also found to contain sizable amount of vitamins specially ascorbic acid and rabiflavin. The result indicates that, these selected species could be explored for their additional values of mineral and vitamins as neutraceuticals apart from their medicinal potential.

A-15

PRELIMINARY PHYTOCHEMISTRY, PHENOLIC CONTENT AND HPTLC PROFILE OF *DESMODIUMTRIFLORUM* (L.) DC.

Ashwini P. Sirsat and Pratiksha P. Umale
Department of Botany, Shri Shivaji College of Arts, Commerce and Science, Akola (MS), India

Desmodiumtriflorum is a small creeping herb from family fabaceae. The plant is being used for its medicinal potential in traditional healthcare system. Present paper focused on its preliminary phytochemical screening, phenolic content and HPTLC profile of methanolic leaf extract. It was observed that the plant was rich in phytochemical content. It was tested positive for availability of phenolic compounds and flavonoids. The total phenolic content was noted as 32.5 ± 0.1 mg/g dry sample. The HPTLC profile at 366 nm showed total six peaks, out of these two peaks/ bands with rf values 0.69 and 0.75 were identified as of coumaric acid and ascorbic acid. At 540 nm, three peaks were observed, off these one with rf value 0.69 was identified as of gallic acid. Probably, the high availability of phenolic content in this plant could be related with its antioxidant potential.

A-16

A NEW SPECIES OF THE GENUS *POLYONCOBOTHRIUM DIESING*, FROM FRESH WATER FISH *CHANNA MARULIUS* IN WAN RIVER AND ITS TRIBUTORIES (MS), INDIA

R. N. Khade[1] and D. S. Dabhade[2]
[1]Department of Zoology, Late Pushpadevi Patil Arts and Science College, Risod, Dist.-Washim, India
[2]Post Graduate and Research Department of Zoology, R.A. Arts, Shri M.K. Commerce and Shri S.R. Rathi Science Mahavidyalaya, Washim-444505, India

The present investigation deals with the systematic observation of a new species of tapeworm *Polyonchobothrium hammerata*Sp.nov. from freshwater *Channamarulius* (F.Hamilton, 1822) at Wari (Hanuman), Tehsil-Telhara, Dist.-Akola (M.S.), India. The worm come closer to all species of genus *Polyonchobothrium* Diesing, 1854 in general topography of organs but differs due to long having Scolex, immature, mature segment. Scolex hammer shaped, broader at anterior and posterior sides than middle. The rostellum armed with rostellar hooks, 29-32 rostellar hooks arranged in circular manner form apical disc, hooks are large. Testes 63-93 in number spread all over in the proglottids. The cirrus pouch is rounded in shape, present in the middle position of the proglottid. Cirrus pouch pyriform, present in middle position of proglottid. The vas deferens is medium. The vagina and cirrus pouch both open common in opening known as genital pore, which is small, circular in shape. The vagina is a thin tube, starting from the genital pore and forms receptaculumseminis, Ootype oval and small. Uterus Sac like having eggs. Eggs oval and non-operculate. Uterine pore oval.

A-17

SYNTHETIC STUDY OF 3-THIO-4-SUGAR-5-*O*-TOLYLIMINO-1,2,4-DITHIAZOLIDINES AND ITS APPLICATIONS AS ANTIBACTERIAL AGENTS

Usha W. Karhe[1] and Kishor N. Puri[2]

[1]Department of Applied Chemistry, Anuradha Engineering College, Chikhli-433201, Buldhana (MS), India
[2]Department of Chemistry, Shri Shivaji Science College, Amravati-444603 (MS), India

Heterocyclic compounds and medicines are interconnected in the recent era. 1,3,5-thiadiazines and their derivatives have been shown to possess brightening and fibre finishing properties in textile industries. Thiadiazines have exhibited remarkable pharmacological activities such as spasmolytic, anaesthetic, cardiovascular and hypo metabolic agents. They are also used as fungicidal, insecticidal and as medicinal compounds. Heterocyclic compounds are found to exhibit anti-inflammatory, anti-parasitic, anti-tubercular, antidiabetic activity.

In view of the continued interest in the development of simpler and more convenient synthetic routes for preparing heterocyclic systems, an efficient and useful method is reported. A series of some 3-thio-4-sugar-5-*o*-tolylimino-1,2,4- dithiazolidines **3** have been synthesized by the interaction of *N*-Sugar-*S*-chloro isothiocarbamoyl chlorides **1** with Ammonium *o*-tolyl dithiocabamate **2**. The identities of these new compounds have been established on the basis of chemical transformation and spectral studies. In the present investigation the *In-vitro* bacterial assay of compounds has been evaluated by using several bacteria such as *Escherichia coli, Staphylococcus aureus* and *Pseudomonas aeruginosa.* All compounds studied shows satisfactory bacterial assay.

A-18

AEROMYCOLOGICAL INVESTIGATION OF INDOOR ENVIRONMENT OF COLLEGE LABORATORIES

Shailendra Madavi* and Anjali Sangole

Department of Botany, Shri R.L.T. College of Science, Akola (MS), India
E-mail - *shailendramadavi2@gmail.com, anjalisangole05@gmail.com*

Laboratories are major working areas of science colleges. They are being sterilized for better, contamination free environment time to time. Still these areas get contaminated due to airborne microorganisms. The major contaminants of the laboratory are aeromycoflora. Thus, the present investigation explores the aeromycoflora of indoor environment of Shri R.L.T. College of Science, Akola (MS). The study was undertaken at the beginning of monsoon i.e. from June to August. For this, 5 petri-dishes with Potato Dextrose Agar (PDA) media were kept open in each laboratory for 1 hour. After incubation period fungi were isolated and identified. Total 22 species belonging to 13 genera were isolated. Most dominant class was Ascomycotes, while Zygomycotes, Oomycetes and Deuteromycetes were quite less in number. Most dominant genera were *Aspergillus, Rhizophus* and *Penicillium*.

A-19

EFFECT OF HEAT AND ACIDIFICATION ON BIOFILM FORMING ABILITY OF MRSA AND VRSA

S. N. Gawande*, V. V. Deshpande*, U. K. Bhalekar and V. D. Nanoty
Department of Microbiology, Shri R.L.T. College of Science, Akola (MS), India
E-mail - *sonalingawande@gmail.com*

Staphylococcus aureus is frequently found in upper respiratory track and on the skin, that causes chronic infection; it is difficult to treat than most strains of *S. aureus* because of its resistance to some conventionally used antibiotics i.e Methicillin and Vancomycin. MRSA infection is still major global healthcare problem. The effect of physical parameter such as temprature and pH was checked against the biofilm forming ability of MRSA. Resistive strains of *S. aureus* were identified from clinical samples such as wound and pus, and grown at 50^0C to 60^0. It was found that bacteria loose their resistivity as well as biofilm forming ability at about 55^0C and no growth was found on 60^0C. Bacteria grows best at basic pH, when pH of medium gets alter(low pH), it also effects the biofilm forming ability of MRSA. As biofilm are less susceptible to antibiotics it is difficult to eradicate them therefore in present study acidification process is done by using vinegar at different concentration which consist of 5%, 10%, 15% and 25% of Acetic acid which acts as an antibiofilm agent.

A-20

SYNTHESIS OF 1,2,4,5-OXATHIADIAZINES AND THEIR ACETYL DERIVATIVE, ANTIMICROBIAL ACTIVITY

C. S. Bhaskar
Department of Chemistry, Taywade College, Mahadula-Koradi, Nagpur-441111, India
E-mail - *12chandrakant@gmail.com*

The 4[(3E)-3-(aryl/alkyl imino)-3,4-dihydro-1,2,4,5-oxathiadiazines have been synthesized by the interaction of 2-[(4-aryl/alkyl) carbonyl]-N-aryl/alkyl hydrazine carbothioamide with iodine in alcohol. Dihydro-iodides have been isolated which on basification with aqueous ammonia solution afforded free bases. These compounds were successfully acetylated into their acetyl derivatives. The structure of these compounds were confirmed on the basis of elemental analysis and spectral data and evaluated for their antimicrobial activity against gram positive and gram negative bacteria.

A-21

ISOLATION, PARTIAL CHARACTERIZATION AND EXTRACTION OF ALKALINE PROTEASE FROM BACTERIAL ISOLATES OF LONAR LAKE

V. D. Nanoty* and Ankita R. Lokhande
Department of Microbiology, Shri R.L.T. College of Science, Akola (MS), India
E-mail - *ankitalokhande99704@gmail.com*

Lonar lake is situated in Buldhana district of Maharashtra state India, which is occupied by saline water and unidentified unique bacteria which produces alkaline enzymes. The present study deals with isolation, partial characterization and extraction of alkaline protease from bacterial isolates of Lonar lake. Total two water sample and one sediment sample were collected

from different sites of Lonar lake. From this samples 8 isolates can be studied, out of which 3 isolates studied for enzyme activity, from this 1 is common isolate which produce both enzymes. For enrichment of samples Horikoshi B medium was used. After enrichment of cultures the isolates were inoculate on skim milk agar and starch agar for proteolytic and amylolytic activity. Zone of hydrolysis indicates the enzymatic activity of isolates. Extraction of enzyme protease was carried out on same media. Identification of isolates was based on cultural, morphological, and biochemical characteristics.

A-22

SUPPLEMENTARY BIO-NUTRITION IN POULTRY FEED AT EARLY DEVELOPMENT OF HEN'S CHICK WITH REFERENCE TO BONE DEVELOPMENT

R. B. Bahadure
Department of Zoology, Shri Vasantrao Naik Mahavidyalaya, Dharni-444702, Dist.-Amravati, India
E-mail - *rameshbahadure531@gmail.com*

This study reveals that the supplementation provided as bio-nutrition in poultry feed at early developmental stages of hen's chick to showed remarkable growth and development. Such as water, protein carbohydrates fats minerals and vitamins are essential to life, growth, production. The morphological observation of development of chicks was taken in the laboratory condition when they were rearing. The rearing in laboratory condition was observed the development and growth on the basis day to day growth of differentiating groups of chicks.

In the present experimentation, young chicks were provided with normal white grains as a conventional food along with formulated feed supplementation containing with whole molluscan animal and shell crush to the experimental groups and observed for 30 days in the laboratory conditions revealed the betterment of weight over the control chicks with hygiene. It was found that 40-50 % increase in weight was observed after 30 days indicating the overall growth of the birds fed with additional diet particularly to reference with bone.

A-23

A NEW METHOD FOR *N-TERT*-BUTOXY CARBONYLATION OF AMINES USING UREA AS AN ORGANOCATALYST

Abdul Shahzad, Dharmendra B. Dupare and Mohd Mujahid*
Department of Chemistry, Shri Dr. R. G. Rathod Arts and Science College, Murtizapur, Dist.-Akola, India
E-mail - *duparedharam5@gmail.com*

A simple, efficient and environmentally benign method for *N*-tert-butoxy carbonylation of amines using urea as a mild and cost effective catalyst has been described. The salient features of the present protocol include high yields (65-99%), short reaction time, high selectivity etc.

A-24

STUDY OF PHYSICO-CHEMICAL CHARACTERISTICS OF GROUND WATER USED FOR IRRIGATION OF AGRICULTURE LAND AT GRAM-GANDHIGRAM, DISTRICT-AKOLA, MAHARASHTRA

Kanchan S. Somwanshi and Pradip P. Deohate*
Department of Chemistry, Shri Radhakisan Laxminarayan Toshniwal College of Science, Akola-444001, India
E-mail - *pradip222091@yahoo.co.in*

Water is the major source for irrigation in India. The quality of irrigation water is a crucial factor for long term soil productivity. The concentration and composition of dissolved constituents in water determine its quality for irrigation purpose. The good quality of water has the potential to cause maximum yield whereas poor quality water can develop various soil and cropping problems. Therefore special management practices may then be required to maintain full crop productivity.

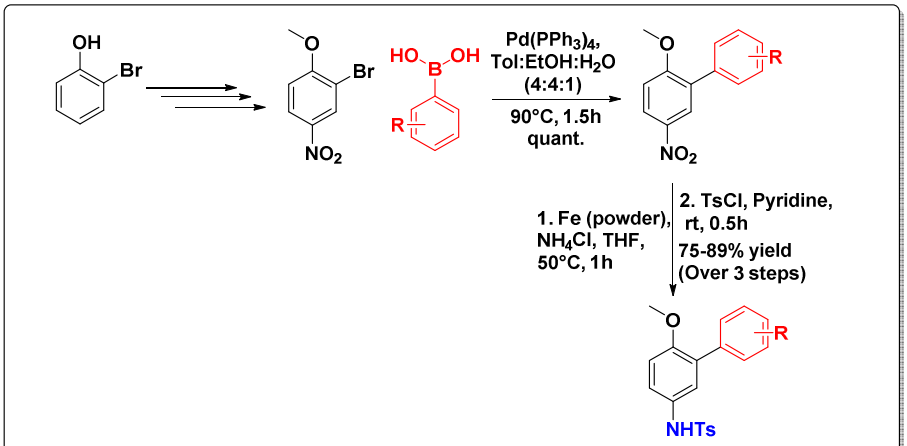
In present work assessment of ground water quality of Gram-Gandhigram, District-Akola, Maharashtra, India for irrigation purpose was carried out to determine the factors that regulate ground water quality. In the month of December-2019, five ground water samples from open and bore wells were assessed for parameters i.e. temperature, colour, pH, EC, alkalinity, chloride, sulphate, calcium, magnesium, sodium, potassium, TDS, COD, DO and BOD. Using SSP and SAR criteria, sodium hazard associated with the irrigation water was evaluated. Results were compared with Bureau of Indian Standards (BIS) limits. Based on the irrigation quality parameters, most of the samples were found to be suitable for irrigation.

A-25

SYNTHESIS AND BIOLOGICAL ACTIVITY OF NOVEL N-(6-METHOXY-[1,1'-BIPHENYL]-3-YL)-4-METHYLBENZENESULFONAMIDE DERIVATIVES FROM 2-BROMO PHENOL USING BORONIC ACID COUPLING, REDUCTION AND TOSYLATION REACTION SEQUENCE

Amardeep R. Jadhao[1*], Shankesh C. Zyate[2] and Sanjay S. Gaikwad[3]
[1]Late Puspadevi Patil College of Arts and Science, Risod-444506, Dist.-Washim, India
[2]Shri Radhakisan Laxminarayan Toshniwal College of Science, Akola-444001, India
[3]M.E.S. Abasaheb Garware College, Pune-411004, India
E-mail - *amardeepjadhao@gmail.com*

Aromatic sulphonamides are pharmaceutically very important class of molecules. They show various bioactivities like carbonic-anhydrase inhibitors, anti-cancer, anti-diabetic, anti-bacterial agents. In literature sulphonamides were in-vitro tested against various diseases and some of them are in clinical trials. While little of them are used in medication, now a days. So, we have synthesised some novel (11 in no.) derivatives of sulphonamides from *o*-bromophenol using palladium-catalysed boronic acid coupling, Fe catalysed nitro reduction followed by tosylation reaction sequence. Synthesised derivatives were studied for their anticancer activity against HELA cell line and observed good potency of some derivatives against cancer.



Scheme: Synthesis of *N*-(6-methoxy-[1,1'-biphenyl]-3-yl)-4-methylbenzenesulfonamide derivatives

A-26

EVALUATION OF ANTIOXIDANT ACTIVITY OF VARIOUS EXTRACTS OF *CURCUMA LONGA*

P. S. Pande* and P. D. Changle
P.G. Department of Chemistry, Shankarlal Khandelwal College, Akola-444002, Maharashtra, India
E-mail - *pandeprasanna25@gmail.com*

Three different solvent extracts viz. water, ethanol and n-hexane extracts of *Curcuma longa* have been screened for their qualitative and quantitative antioxidant activity. All extracts showed good antioxidant activity. IC_{50} values have also been determined. The IC_{50} values for water, ethanol and n-hexane extracts were found to be 0.029 mg/ml, 0.055 mg/ml and 0.055 mg/ml respectively.

A-27

QUALITATIVE PHYTOCHEMICAL ANALYSIS AND PHARMACOLOGICAL STUDIES OF *GLORIOSA SUPERBA* (L.)

P. M. Khadse
Department of Botany, Shri R.L.T. College of Science, Akola, India
E-mail - *pramodkhadse12@gmail.com*

The use of plants as medicine is as old as human civilization. People of all ages in both developing and developed countries use plants in an attempt to care various diseases and to get relief from physical sufferings. Medicinal plants have been used from centuries as remedy for human diseases because they contain the compounds of therapeutic values. The plant kingdom has proven to be the most useful in the treatment of various diseases and they have provides an important source of all the words pharmaceuticals. Natural products are a source for bioactive compounds and have potential for developing some novel therapeutic agents. Hence in the present study pharmacological activity, traditional benefits and phytochemical analysis of *Gloriosa superba* (L.) confirms the presence of various phytochemicals like saponin, terpenoids, steroids, flavonoids, tannins, quinones and alkaloids. The result suggests that, this plant have a great potential for curing various ailments and can be source of useful drugs.

A-28

ANALYSIS OF GROUND WATER QUALITY AND ITS SUITABILITY FOR IRRIGATION OF AGRICULTURE LAND AT GRAM-BORGAON MANJU OF AKOLA DISTRICT IN MAHARASHTRA

Ankita R. Bagade and Pradip P. Deohate*
Department of Chemistry, Shri Radhakisan Laxminarayan Toshniwal College of Science, Akola-444001, India
E-mail - *pradip222091@yahoo.co.in*

In India water is the major source for irrigation. Quality of water is an important consideration in any appraisal of salinity or alkali conditions in an irrigated area. Contaminants in irrigation water may accumulate in the soil and, after a period of years, render the soil unfit for agriculture.

Present work deals with the assessment of ground water quality of Gram-Borgaon Manju of Akola district in Maharashtra, India for irrigation purpose to determine the factors that regulate ground water quality. Five ground water samples from open and bore wells were collected in the month of December-2019 and analyzed for parameters viz. temperature, colour, pH, EC, alkalinity, chloride, sulphate, calcium, magnesium, sodium, potassium, TDS, COD, DO and BOD. Sodium hazard associated with the irrigation water was evaluated using SSP and SAR criteria. Based on the irrigation quality parameters, as per the Bureau of Indian Standards (BIS) limits, all samples were found to be suitable for irrigation.

A-29

AMYLASE PRODUCTION AND CHARACTERIZATION FROM *ASPERGILLUS NIGER* IN SOLID STATE CULTURE

R. L. Meshram and D. R. Motwani
Department of Biochemistry, DRB Sindhu Mahavidyalaya, Panchpaoli, Nagpur-440017
E-mail - *drbsmvbiochemistry@gmail.com, daminimotwani7@gmail.com*

The enzymes from microbial sources are more stable and can be obtained from cheap sources. Amylases are among the most important enzymes and are of great significance in present day paper, textile and food industries. The present study describes isolation of amylase producing fungus from the soil of Nagpur city, Maharashtra. Seven fungal isolates were screened for the production of amylase by starch agar plate assay. Among seven isolates the isolate which shows maximum amylase production on the basis of zone of clearance on the plate assay was selected and identified as *Aspergillus niger*. Solid state fermentation was performed using the cheap agro waste wheat bran, rice bran, potato peel and citrus peel as substrate and different bioprocess variables, such as incubation period, pH and temperature were optimized. The results showed that maximum amylase production obtained with potato peel as substrate 96 U/g. Maximum enzyme production was found to be optimum at incubation period 6th day (97 U/g), pH of 5.0 (96U/g) and temperature of 40^{0}C (93 U/g).

A-30

ELECTRICAL CONDUCTIVITY OF Co(II), Ni(II), Cu(II) AND Cr(III) COMPLEXES DERIVED FROM THIAZOLE SCHIFF BASE

S. R. Kelode[1] and P. R. Jagnit[2]
[1]Department of Chemistry, Arts, Commerce and Science College, Maregaon
[2]Department of Chemistry, Indira Gandhi Mahavidyalaya, Ralegaon
E-mail - *sandeep_kelode@yahoo.co.in*

A thiazole Schiff base has been prepared by the condensation of 2-hydroxy-5-chloro-3-nitro acetophenone and thiazole. The ligand was characterized by elemental analysis and spectral methods. The coordinating ability of the ligand is investigated by preparing its metal complexes with Co(II), Ni(II), Cu(II) and Cr(III) have been prepared and characterized by elemental analysis, molecular weight determinations, conductance measurements, spectral and thermal studies. All the complexes have been studies and evaluated by electrical conductivity. The isolated products are coloured solids, soluble in DMF, DMSO and THF.

A-31

ANTIMICROBIAL POTENTIAL OF *OCIMUM SANCTUM* ON SOME SELECTED SKIN ASSOCIATED MICROBES

M. G. Lote, N. R. Rathi and R. R. Apturkar
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *namratarathi2525@gmail.com*

Tulsi is a traditionally worshipped plant in India. It is widely known for its medicinal properties. It is used in Ayurveda system of medicine to cure various diseases including dysentery, diarrhoea and skin infection. *O. Sanctum* leaves were collected and then washed leaves properly with water, shed dried and electronic grinding machine was used to prepare fine powder and stored in air tight container at room temperature. Methanolic and aqueous extract of *O. Sanctum* were prepared using Soxhlet apparatus. Both extracts were screened for its antimicrobial potential against *S. aureus* and *E. coli* as model microorganisms. Prominent antimicrobial activity in the range of 12mm to 28mm against *E. coli* and 15mm to 28 mm for *S. aureus* was shown against test microbes. Present study confirms medicinal potential of *O. Sanctum* which is traditionally quoted in many books.

A-32

ANTIMICROBIAL POTENTIAL OF TRADITIONALLY USED MEDICINAL PLANTS

P. P. Ingle and U. K. Bhalekar
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *priyaingle17081993@gmail.com*

Traditional custom of India are proven to have scientific background. In Ayurveda many plants are mentioned to have medicinal values. Due to increasing antibiotic resistance again science is moving towards our traditional knowledge of Ayurveda. The present study aims to check antimicrobial potential of some traditionally used medicinal plants including Wheat grass, Guava leaves and Menthol leaves. The antimicrobial activity of plants is mostly because of secondary metabolites produced by them. In the present study the crude extract and Acetone

extract of all the three plants was tested against two test organisms *E. coli* and *S. aureus* by using agar well diffusion method on nutrient agar. Acetone extract of all three plants leaves were made by using soxhlet extractor. Among the entire three sources, the Guava leaves extract was found to have maximum antimicrobial potential. While Acetone and crude extract of Wheat grass was found to have antimicrobial activity against *E. coli* and have no effect on *S. aureus*.

A-33

A STUDY OF GLYCOGEN ESTIMATION IN THE BODY OF SENGA NATHSAGARENSIS FROM A FRESH WATER FISH CLARIAS BATRACHUS

Nilima M. Kankale
Department of Zoology, G.N.A. Arts, Commerce and Science College, Barshitakli, Dist.-Akola (MS), India
E-mail - *drnmpatil74@gmail.com*

Cestode when live in the intestine of hosts they utilize food from the gastrointestinal tract. The metabolism of these cestodes depends on the feeding habits and the rich nourishments available in the gut of the host. These warms use their nourishments for their normal development and growth. The metabolic and in micro-studies suggest that a complex nutritional relationship occur between a cestode and its host.

Glycogen content is variable in different strobila. H. diminuta (Good Child 1961) percentage of Glycogen changes as age of worm (Mettric and Cannon 1970) in posterior segments, lipid is more than anterior segment. Therefore, it is a variation to the Glycogen content of one species to other species. In view of greater magnitude of tapeworm distribution, the study of cestode requires the biochemical data of all the worms living in different habitats.

A-34

STUDY ON EFFECT OF DIETARY GARLIC INDUCED GROWTH PERFORMANCE AND BEHAVIRAL RESPONSES IN *CLARIAS BATRACHUS* (LINN)

P. M. Makode
Department of Zoology, Dr. R. G. Rathod Arts and Science College, Murtizapur, Dist.-Akola
E-mail - *pravin_makode@rediffmail.com*

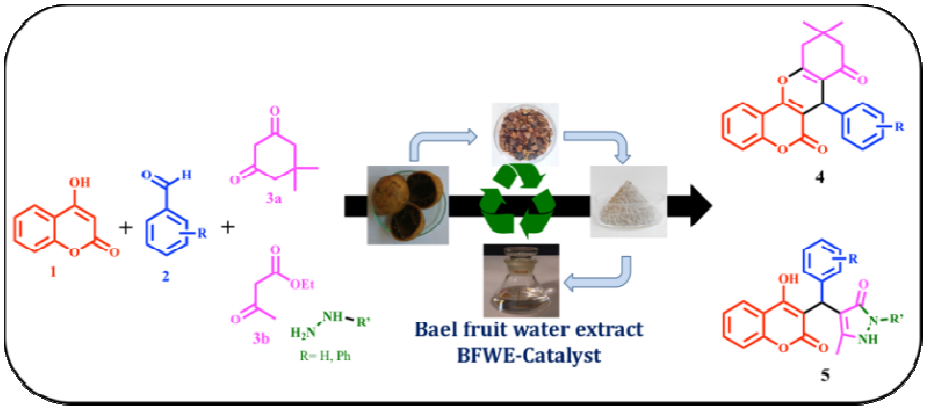
The aim of this study was to assess the effect of garlic (*Allium sativum*) on whole body composition in the fresh water fish *Clarias batrachus.* A total number of 50 fish (average weight 60±10g) were used. Fish were divided into two groups fed on diets containing garlic in different levels and the control group diet was without garlic. The experiment extended for three months. The results showed significant weight gain and growth performance increased in all groups fed on garlic. A significant difference was observed in whole body composition (Carbohydrates, Proteins, Lipids, Fibers, Ash, Moisture and Gross energy) of fish at the end of the experiment which indicates the improved body composition. The mortalities were lower in diet supplemented with garlic than in the control group. The results of this study show that addition of garlic *Allium sativum* to fish diet can promote growth of fish; enrich the body composition and improve the survival rate in fresh water fish *Clarias batrachus*.

A-35

NATURAL RESOURCES IN ORGANIC TRANSFORMATIONS: BAEL FRUIT ASH WATER EXTRACT AS A GREENER CATALYTIC MEDIUM FOR SYNTHESIS OF TETRAHYDROCHROMENO[4,3-B]CHROMENE-6,8-DIONE AND BENZYLPYRAZOLYLCOUMARIN DERIVATIVES

Appasaheb T. Birajdar
Green Chemistry Research Laboratory, Department of Chemistry, SMDBS College, Miraj-416410, Dist.-Sangli (MS), India
E-mail - *appu.birajdar12@gmail.com*

A simple and environmental-friendly synthetic protocol has been developed for the synthesis of tetrahydrochromeno[4,3-b]chromene-6,8-dione derivatives by condensation of 4-hydroxycoumarin with aromatic aldehydes and dimedone in the presence of Bael Fruit Ash Water Extract in mild reaction condition. This green protocol was further extended for structurally diverse benzylpyrazolylcoumarin by condensation of equimolar quantity of aromatic aldehydes, hydrazine hydrate, ethylacetoacetate, and barbuteric acid in good to excellent yields. The advantage of this method includes a mild, efficient and highly economical protocol under aerobic conditions at very short reaction time, under ligand/external catalyst/external promoter-free conditions. This protocol is better and more practical alternative to the existing protocols for green processes.



A-36

COMPARATIVE ANTIMICROBIAL ACTIVITY OF *OCIMUM BASILICUM, LEPIDIUM SATIVUM, BRASSICA NIGRA* SEEDS AGAINST UROPATHOGENS

V. B. Mane, A. A. Deshmukh and U. K. Bhalekar
Department of Microbiology, Shri R.L.T College of Science, Akola
E-mail - *vaibhavbmane1996@gmail.com*

Medicinal plants are traditionally believed to be used for therapeutic purpose. In present study, Basil (*Oscimum basilicum*), Garden cress (*Lepidium sativum*), Mustard (*Brassica nigra*) seeds were used as raw material for evaluation of their bioactive compound. Active components of seeds were extracted using soxhlet apparatus with solvent methanol. This study aimed to determine by agar well method that effects of seeds extract on uropathogens such as *E.coli, S.aureus, K.pneumoniae, Pseudomonas aerogenosa*. The extract showed antimicrobial activity by inhibiting the growth of respective microorganisms in agar well diffusion assay.

A-37

MICROBIAL PROFILING OF BAKERY PRODUCTS

H. S. Malpani*, S. S. Dhankani and V. D. Asolkar
Department of Microbiology, Shri R.L.T College of Science, Akola
E-mail - *sandhyaasolkar560@gmail.com*

Bakery products constituent major part of diet in European countries, while it's consumptions in Indian continents is increasing day by day. Bakery products provide different essential nutrients such as carbohydrates proteins, lipids, vitamins and minerals. Flour of variety of grains provides primary structure of most baked products. Though bakery products are made by microbial fermentation, undesirable growth of microorganisms leads to spoilage. Present study investigates microbiological profile of Bakery products sold in and around Akola city. Variety of Bakery products were collected from different bakeries and so proceed for MPN and presence of different microorganisms. In total 20 samples analysed 30% were having MPN 2400, while 40% of samples were having MPN more than that. Only 30% of Bakery product having MPN less than 10 and we're found primarily satisfactory for human consumptions present study alarms about manufacturing procedure and raw material used for preparations of Bakery product to increase its productivity and longitudity of consumers.

A-38

BIOLOGICAL REFINING OF RANCID OIL

S. S. Hadole and S. N. Gawande
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *hadolesuyesha@gmail.com*

The different types of vegetables oil are available in the market such as sunflower oil, groundnut oil, soyabean oil etc. The common method for the food preparation is frying which is use in hotels as well as house. Used cooking oil is a hazardous waste so it becomes a rancid and rancidity remove from the oil for reusing oil it by using microbial refining. An attempt to improve the used cooking oil quality back to its original stage has been made during the studies. Oil undergoes physical changes also undergo chemical reactions by the process of frying. Bacterial isolates *Staphylococcus aureus*, *Pseudomonus aeruginosa* etc. isolated from sewage of Morna river is use for microbialy enhance oil recovery (refining) by using DCPIP technique. These bacteria are having the capacity to change the oil rancidity by using the DCPIP methods in laboratory conditions. The bacteria change the oil rancidity by getting lower Peroxidase and Free Fatty Acids values as compare to the untreated oil. By using this method rancid oil is turned into healthy one by observing the physical parameters as colour, odour, and viscosity. Hence this oil reused in hotels as well as in house.

A-39

BACTERIAL MESS ON MESS KITCHEN TOWEL

S. R. Rathi and S. N. Gawande
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *rathishriya4@gmail.com*

Cotton towels are commonly and regularly used in homes especially kitchen environment. These towels used for multipurpose as a result they get stain and sometimes stains left unnoticed.

Cotton towels are used in kitchen for many purposes like to clean dishes, to clean platform etc. In mess kitchen towels remain unwashed for many times. Due to such conditions kitchen towels carry many bacteria namely *Pseudomonas aeruginosa, Staphylococcus aureus, Enterococcus species.*

The mess kitchen towels carry above said bacteria can be a role playing factor in health issues if it has not been given important attention.

A-40

MICROBIOLOGICAL CONTAMINANT OF SOME COSMETICS, ISOLATION AND CHARACTERIZATION OF MICROORGANISMS

A. A. Dhenge, S. G. Maheshwari and V. D. Nanoty
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *ashvinidhenge05@gmail.com*

Cosmetics are a product created for beautifying skin appearance. Cosmetics product may be contaminates during manufacturing by microorganisms existing in the raw material. The microbial quality assessment of cosmetics provides safety of users. The aim of present study was to assess the microbial quality of certain brands of face cream. The bacterial count was estimated using serial dilution technique. Different selective media were used for isolation of microorganisms. The isolates were identified based on their morphological and chemical characteristics. It was found some products are contaminated with various strain of bacteria. The contaminating bacteria were found to be *S.aureus, E.coli and Pseudomonas aeroginosa.* The bacteria are isolated from the product pose a significant health risk to users. The study indicates that there is need to introduce stringent control measures for manufacturing and packing of product pose a significant.

A-41

EXTRACTION AND ANTIOXIDANT ACTIVITY OF EXTRACTS OF *ARTEMISIA PALLEN* (DAVANA) PLANT

M. O. Malpani[*1] and P. R. Rajput[2]
[1]Department of Chemistry, Shankarlal Khandelwal Arts, Science and Commerce College, Akola-444002, Maharashtra, India
[2]S.S.S.K.R. Innani Mahavidyalaya, Karanja-Lad-444105, Maharashtra, India
E-mail - *momalpani@gmail.com*

Artemisia pallen commonly known as *Davana* is the medicinally potential plant which is used to cure various diseases such as hypotensive properties and brings down blood pressure. Davana oil is also used in making perfumes. Essential oil fights infections from bacteria microbes, fungi and viruses and help to cure infectious diseases. The present investigation was undertaken to screen the extraction and antioxidant activity of *Artemisia pallen* (Davana) plant extracts.

A-42

SYNTHESIS, SPECTRAL CHARACTERIZATION AND ANTIMICROBIAL STUDIES OF SOME TRANSITION METAL COMPLEXES WITH ONNO-DONOR TETRADENTATE

A. D. Bansod
Department of Chemistry, Rajarshee Shahu Science College, Chandur Rly.-444904, Dist.-Amravati, India
E-mail - *drashishbansod@gmail.com*

The complexes of the type MLXn, where M=VO(IV), Mn(II), Fe(III), Co(II), Ni(II), Zn(II) and Cd(II), X=H2O/Cl and L is the schiff base ligand derived from 2,4-dihydroxy-5-acetylacetophenone and 1,4-diaminobutane have been synthesized. All the complexes isolated in solid state, are stable in air and characterized by the elemental analysis, metal content determination, magnetic measurements, thermogravimetric analysis (TGA), IR, and electronic spectral data. The physicochemical data suggest a square pyramidal structure to VO(IV), pseudo octahedral to Cu(II) and an octahedral for Mn(II), Fe(III), Co(II),Ni(II) and Cd(II) complexes. The ligand field parameters have been calculated and related to the electronic environment. The Schiff base and its complexes were screened for their antimicrobial activities against various bacteria and fungi.

A-43

A NEW SPECIES OF THE GENUS *POLYONCOBOTHRIUM DIESING*, FROM FRESH WATER FISH *CHANNA MARULIUS* IN WAN RIVER AND ITS TRIBUTORIES (MS), INDIA

R. N. Khade[1] and D. S. Dabhade[2]
[1]Late Pushpadevi Patil Arts and Science College Risod, Dist.-Washim, India
[2]Post Graduate and Research Department of Zoology, R.A. Arts, Shri M.K. Commerce and Shri S.R. Rathi Science Mahavidyalaya, Washim-444505, India

The present investigation deals with the systematic observation of a new species of tapeworm *Polyonchobothrium hammerata* Sp.nov.from freshwater *Channa marulius* (F.Hamilton, 1822) at Wari (Hanuman) Tehsil Telhara Dist Akola (M.S.) India. The worm come closer to all species of genus *Polyonchobothrium* Diesing, 1854 in general topography of organs but differs due due to long having Scolex, immature, mature segment. Scolex hammer shaped, broader at anterior and posterior sides than middle. The rostellum armed with rostellar hooks, 29-32 rostellar hooks arranged in circular manner form apical disc, hooks are large. Testes 63-93 in number spread all over in the proglottids. The cirrus pouch is rounded in shape, present in the middle position of the proglottid. Cirrus pouch pyriform, present in middle position of proglottid. The vas deferens is medium. The vagina and cirrus pouch both open common in opening known as genital pore, which is small, circular in shape. The vagina is a thin tube, starting from the genital pore and forms receptaculum seminis, Ootype oval and small. Uterus Sac like having eggs. Eggs oval and non-operculate. Uterine pore oval.

A-44

SYNTHESIS AND THERMOKINETIC STUDIES OF Co(II), Ni(II) AND Cu(II) WITH TETRADENTATE SCHIFF BASE

S. R. Kelode[1] and P. R. Jagnit[2]

[1]Department of Chemistry, Arts, Commerce and Science College, Maregaon-445303 (MS), India

[2]Department of Chemistry, Indira Gandhi Kala Mahavidyalaya, Ralegaon-445402 (MS), India

E-mail - *sandeep_kelode@yahoo.co.in, pawanjagnit2009@gmail.com*

The newly tetradentate Schiff base have been synthesized by condensing 2-hydroxy-5-bromo acetophenone with ethylene diamine. The metal complexes were obtained as a result of interaction of Schiff base ligand and metal ions Co (II), Ni (II) and Cu (II). The complexes have been characterized on the basis of elemental analysis, infrared, molar conductance, magnetic Susceptibilities, electronic spectra and theromogravimetric analysis. Thermodynamic activation parameters were computed from the thermal data using Broido, Horowitz-Metzger and Freeman-Carroll method, which confirm first order kinetics and kinetic compensation effect.

A-45

EFFECT ON GERMINATION PATTERN OF JOWAR (*SORGHUM VULGARE*) OF SOME SULPHUR AND NITROGEN CONTAINING HETEROCYCLIC COMPOUNDS

S. W. Suradkar[1] and S. A. Waghmare[2]

[1]Department of Botany, Ghulam Nabi Azad Arts, Commerce and Science College, Barshitakli-444401, Dist.-Akola (MS)

[2]Department of Chemistry, Ghulam Nabi Azad Arts, Commerce and Science College, Barshitakli-444401, Dist.-Akola (MS)

E-mail - *Santoshbot214@gmail.com*

Present research work states the effect some sulphur and nitrogen containing heterocyclic compounds on germination pattern of jowar. Nitrogen containing heterocyclic compounds used (2*E*)-1-{4-[3-(2-chlorophenyl)thiocarbamido]phenyl}-3-(3,4-dimethoxy phenyl)prop-2-en-1-one (III), (2*E*)-1-{4-[5-(2-methylprop-2-yl)-2,4-dithiobiureto]phenyl}-3-(3,4-di methoxyphenyl)prop-2-en-1-one (V), (2*E*)-1-{4-[3-(2-methylprop-2-imino)-3*H*-1,2,4-dithiazol-5-yl]amino phenyl}-3-(3,4-dimethoxyphenyl) prop-2-en-1-one (VI), (2*E*)-1-{4-[2-(2-methylprop-2-yl)imino-4-(2-methylprop-2-yl)imino-1,3,5-dithiazino-6-yl]aminophenyl}-3-(3,4-dimethoxyphenyl) prop-2-en-1-one (VIII), (2*E*)-1-{4-[2,4-dithio-3-(2-methylprop-2-yl)-5-(2-methylprop-2-yl)-1,3,5-triazino-6-yl]ami nophenyl}-3-(3,4-dimethoxyphenyl)prop-2-en-1-one (IX), etc.

A-46

DATABASE MANAGEMENT SYSTEM (DBMS) & WEB-TECHNOLOGY-THE MOST MODERN COMPUTATIONAL METHODS IN MONITORING & MAPPING OF FOREST TREE COVER

Ranjan B. Kalbande

Department of Botany, Shri Dr. R. G. Rathod Arts and Science College, Murtizapur, Dist.-Akola (MS), India

Mapping and monitoring of forest tree cover to know the enormous resources and potentially important data available, even quantity and quality of vegetation for appropriate

planning and management for the conservation and sustainable utilization and to understanding the complexity of forest vegetation. The spatial distribution resources on maps along with other features could provide accurate information for planning and implementation and utilization of these resources in a sustainable manner. The database was one of the most modern computational methods, where the available information from the plant specimens were stored and made available to taxonomist through Internet. Database development technology had resulted in designing more comprehensive and effective, relational database.

Databases were normally developed with the help of MS-Access software, which was one of the MS office tools. MS Access, Visual basic, Oracle, Visual Fox-Pro, etc. were also used for developing databases that facilitated data exchange and compatibility based on the speed and power to handle large volume data with required security. Several utilities of database like Gazetteers, Barcode and Distribution Maps were highly useful for building herbarium database. In this present research work the databases on plant description, botanical terminology, medicinal plants, and herbarium field information and also of height and girth were developed with the help of MS-Access database software. The different morphological characters such as tree code, local name, family, genera, botanical name, habitat, habit, stem, bark, leaf, flower, calyx, corolla, androecium, gynoecium, fruit, flowering and fruiting period of the individual species were stored in the prepared database. The database on botanical terminology and medicinally important tree species was developed. In the terminology database, the botanical terms were stored.

A-47

DIVERSE NATURE OF BARKS OF MANY TREE SPECIES ARE VALUABLE, MEDICINALY IMPORTANT AND HELPS IN IDENTIFICATION OF TREES

Ranjan B. Kalbande

Department of Botany, Shri Dr. R. G. Rathod Arts and Science College, Murtizapur, Dist.-Akola (MS), India

Tree bark is protective and valuable. It was found that bark has its uses to human as well as to trees was acting as the ‘skin’ of the tree. The bark was protecting cover of the tree, and for protection purpose form infections, fires etc. The tree bark was traditionally used for medicinal purposes. The tree bark was broadly classified on the basis of morphological characters, colour and texture whether it was smooth, scaly, furrowed, warty or shaggy. An interesting fact about bark is that main ingredient in aspirin, salicylic acid is obtain from poplar and willow bark. Bark has become a necessity in the production of clothing and recreational objects. In this present work the bark specimens were collected by cutting small portion of the bark of the trees and tagged. External features like colour and texture of the bark was studied. On the basis of these characters the bark was classified in different types such as smooth, furrowed, scaly, warty and shaggy. The diverse nature of the bark was supporting character for tree identification. The information on medicinal use of the bark was collected from local tribal. It was evident that the diverse natures of the barks of the forest trees supports for identification of species. Tree bark was a source of organic matter for soil.

A-48

TO STUDY ANTIMICROBIAL ACTIVITY OF SOME MEDICINAL PLANT EXTRACT AGAINST SKIN PATHOGEN (*STAPHYLOCOCCUS AUREUS)*

R. G. Wakudkar, S. A. Toshniwal and U. K. Bhalekar
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *reshmawakudkar1234@gmail.com*

In order to allow these concerns and to meet public demand, extensive research on medicines is needed to be undertaken not only for their great health care value but also for the commercial benefits. Plant produce Secondary metabolites which are generally responsible for the antimicrobial activity of leaf extract of (*Aegle marmelous, mint, mangifera indica.*) from the leaf were extracted with acetone, ethanol, methanol respectively by crude method. The extracts were subjected to antimicrobial tests against test organism (S. aureus). In the present study the entire source investigated for antimicrobial properties was determined by well diffusion method found against skin pathogen (*staphylococcus aureus)* the above extract obtained should desirable antimicrobial activity against the tested organism.

A-49

POTENTIAL BENEFITS OF VERMICOMPOST ON THE ORGANOLEPTIC EVALUATION OF SENSORY CHARACTERISTICS OF FENUGREEK IN COMPARISON TO ARTIFICIAL FERTILIZER

Archana A. Dupare and Yogita G. Thakre
Department of Home Science (Family Resource Management), Yeshwant Mahavidyalaya, Wardha
Department of Home Science (Chemistry), Yeshwant Mahaviyalaya, Wardha
E-mail - *duparearchana@gmail.com*

To satisfy the growing food demands of the increasing population, traditional way of farming is replaced by new methods and technologies employing chemicals fertilizers and pesticides and that have created harmful effects on the soil as well as on the water bodies disturbing the life. Substantial farming was done in olden days with the use of organic manures. Due to which no side effect were observed on our environment and the nutritive value of vegetables and grains, as well as the organoleptic acceptability was high. With this view, in the present study a leafy vegetable, fenugreek, was grown using vermicompost and artificial fertilizer, and was studied for its sensory characteristics. Recipe was formulated and evaluated. Three trials (T1,T2 and T3) were conducted for testing of various sensory characteristics such as appearance, colour, texture, taste, flavor, and acceptability. For this purpose, six human panelists, coded as J1, J2, J3, J4, J5 & J6, were the judges. Recipe was served fresh. Based on the mean values, results were tabulated and analyzed statistically by applying 't' test. It was observed that vermicompost variety significantly scored maximum than artificial fertilizer variety. A significant difference was observed in the organoleptic characteristics of the two varieties. Thus it was concluded that the vermicompost variety was highly appreciated and more superior in all the sensory characters over artificial fertilizer which was statistically proved. Thus by using organic manure for farming, we can save our ecosystem as well as our health by consuming these vegetables.

A-50

ISOLATION AND IDENTIFICATION OF MICROORGANISMS FROM RESTAURANT MENU CARDS

A. B. Padmane and S. N. Gawande
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *ashwinipadmane23@gmail.com*

The restaurants menus are main source of contamination in restaurant. There is direct contact of consumers hands and served food which leads to food borne diseases and the reason being the restaurant menu cards that are 100 times dirtier than toilet covers. The current study aims to demonstrate the actual bacterial contamination present in their surface. Infection, spoilage and contamination of food in restaurant, Dhabas and street stalls and other sites are birth place of many microorganisms. For this purpose 10 menus for various restaurant that are plastic/laminated, paper/paperboard were sampled to detect presence of aerobic microorganisms, specifically *E.coli and Enterococcus feacalis* .The method included the collection of swabs from different sites of menus from restaurant, Dhabas and street stalls. The next important step included isolation of bacterial strains.These were separated by help of morphological characteristics and biochemical identification etc. As result Various pathogenic microorganisms are observed and identified from the distinct site of different menus which are as *S.aureus,E.coli, Enterococcus feacalis , Staphylococcus epidermidis,*fungi and yeast such *as Aspergillus Niger, Candida*.

A-51

SYNTHESIS, SPECTRAL STUDIES AND SCREENING OF 1-PHENYL-3-(2)-HYDRAZINO-1,3-SUBSTITUTED BENZOTHIOZOLYL THIOCARBAMIDES

Kavita M. Heda
Department of Chemistry, Shri R.L.T. College of Science, Akola-444001 (MS), India
E-mail - *kavitaheda25@gmail.com*

Benzothiazole is one of the most important heterocyclic compound, a weak base, having varied biological activities and still of great scientific interest nowadays. They are widely found in bioorganic and medicinal chemistry with application in drug discovery. Benzothiazole is a privileged bicyclic ring system. Due to its potent and significant biological activities, it has great pharmaceutical importance; hence, synthesis of this compound is of considerable interest. The small and simple benzothiazole nucleus if present in compounds involved in research aimed at evaluating new products that possess interesting biological activities. Keeping in this view, when one biological active molecule is linked to another, the resultant molecule generally has increased potency.

Hence for the first time, in present work, we have interacted two pharmocophores, phenyl isothiocynate and substituted 2-hydrazino-1,3-benzothiazoles in acetone medium to yield 1-Phenyl-3-(2)-Hydrazino-1,3-Substituted Benzothiozolyl thiocarbamides. 1-Phenyl-3-(2)-Hydrazino-1,3-Substituted Benzothiozolyl thiocarbamides have been established on the basis of usual chemical transformations and IR , ^{1}H NMR and Mass spectral studies. The antibacterial and antifungal activities of also reported. Some of these derivatives exhibit significant antimicrobial activity.

A-52

ISOLATION, SCREENING AND PARTIAL PURIFICATION OF CELLULASE FROM CELLULASE PRODUCING BACTERIA

Shilpa Lokhande[1], A. S. Pethe[*1] and U. K. Bhalekar[2]
[1]Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola-444003 (MS), India
[2]Department of Microbiology, Shri R.L.T. College of Science, Akola-444001 (MS), India

The present investigation was undertaken to isolate and screen the cellulase producing bacteria. Microbial cultures were isolated from the soil sample collected from different villages of saline belt of Akola and Buldana District, Maharashtra India. A Total of 146 isolates were isolated and identified based on Morphology and Biochemical characterization. Among all isolated organisms 37 bacterial species were isolated, the one cellulolytic bacterial isolate shows maximum enzyme activity, and identified as *Pseudomonas aeruginosa*. The best conditions like pH, carbon source,temperature and incubation period were also observed for cellulase producing organisms. Optimum temperature and pH of the medium for the cellulase production were 40°C and 6, whereas it shows maximum enzyme activity after third day of incubation period. Carboxy methyl cellulose [1.0% (w/v)] was found to be the best carbon source for the production of cellulase from *Pseudomonas aeruginosa*. Further partial purification of cellulase was carried out by dialysis and ammonium sulphate precipitation and to determine molecular weight by SDS-PAGE. The partial purification of the cellulase enzyme produced by *Pseudomonas aeruginosa* had protein bands with the molecular weight of 45 kDa and FTIR was performed.

A-53

A NOVEL SYNTHESIS AND CHARACTERIZATION OF NANOPARTICLES OF MALTOSYLATED FORMADIMIDES

Poonam T. Agrawal
P.G. Department of Chemistry, Shri R.L.T. College of Science, Akola-444001 (MS)
E-mail - *poonamagrawal2575@rediffmail.com*

Nanoparticles and desulphurized compounds of carbohydrates shows incrassating importance in industrial and medicinal research, we hereby report the synthesized series of 1-hepta-O-benzoyl-β-D-maltopyranosyl-3H/aryl formadimides nanoparticles and are characterized by IR, NMR and X-ray diffractions.

A-54

ANTIMICROBIAL ACTIVITY OF GREEN TEA AGAINST UROPATHOGENS

V. M. Mali, S. S. Morey and V. D. Nanoty
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *vaishnavimm97@gmail.com*

Green tea, derived from leaves of the *Camellia sinensis* plant has been shown various health benefits. *Camellia sinensis* is a safe, non-toxic, cheap beverage that has been reported to have antimicrobial effect against various microorganisms causing urinary tract infections. The phenolic components of green tea have antimicrobial activity. This study aims at examining the effect of green tea leaf extract (GTE) on uropathogens. The urine samples collected from the infected patient. The microorganism causing urinary tract infection isolated with the help of

morphological, cultural, and biochemical studies. The antimicrobial activity of aqueous extract of green tea was checked against uropathogens. *Escherichia coli* accounts for the large majority of naturally acquired urinary tract infection. The antimicrobial susceptibility test performed with aqueous green tea extract using well diffusion method. The result of this study has shown that green tea extract can have an antimicrobial effect against *E.coli* that causes the UTIs. It is our hope that these findings will encourage further studies on the antimicrobial potential of green tea and other plant components.

A-55

A *STREPTOMYCES* ISOLATE FOR BIOCONTROL OF *RHIZOCTONIA BATATICOLA* INFECTION OF SOYBEAN

Amarja S. Khendkar and Aarti R. Deshpande
Department of Microbiology, Shankarlal Khandelwal College, Akola, Maharashtra, India
E-mail - *aarti_deshpande19@rediffmail.com*

Root rot of soybean caused by *Rhizoctonia bataticola* is the most common soil born disease of soybean. *Streptomyces*ANSP4 isolated from rhizosheric soil of pomegranate demonstrated antagonistic potential against *R. bataticola* by dual culture technique and showed 36.47 percent inhibition of fungal growth. Efficacy of application of the strain on seedlings vigour index (SVI) of R1 inoculated Soybean seeds was tested by paper towel method . Treatments with *Streptomyces* sp. ANSP4 resulted in increase in SVI from 666.75 to 2414.88. This increase in SVI was significantly greater as compared to the treatment with Carbendazim.

*Streptomyces*ANSP4 was further studied to evaluate its biocontrol potential by seed application in pot trails. In this study *Streptomyces* ANSP4 was found to control *R. bataticola* infection and increased plant growth as compared to control and carbendazim treatment of *R. bataticola* challenged seeds. *Streptomyces* ANSP4 was identified as *Streptomyces malachitospinus* by 16s rRNA gene sequencing.

A-56

BACTERIOLOGICAL DEINKING OF NEWSPAPER INK

D. J. Katkar and S. N. Gawande
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *dnyanukatkar7173@gmail.com*

Along with increasing world economic growth, a substantial increase in the paper consumption is expected. As a result the paper industry could well experience limited raw material resources. The paper industry faces several problems such as global pressure to reduce water consumption to use more recycled paper and to low environmental impact. Hence 'recycling of paper' as a solution of problem. One of the important processes in recycling of paper is removal of printing ink to obtain a brighter pulp known as deinking. However, this method employees large quantities of chemicals and has two disadvantages. The chemicals used are harmful to the environment these chemicals are used in large amounts the waste water treatment is costly. The effluent released from this process has high COD value.

In this method the use of bacteria or enzymes obtained from them for deinking. For this purpose the effluent sample are collected from the paper industry to detect presence of microorganism to degrade the enzymes obtained from the effluent sample. The sample are collected then inoculate on the nutrient agar on specific dye and next important step included

isolation of bacterial strain these were separated by help of morphological characteristics and biochemical identification etc. As a result various biodegrading microorganisms are observed having gram positive long rods, which carried out biodegradation of ink.

A-57

TO STUDY ANTIBACTERIAL EFFICACY OF PUMPKIN BY-PRODUCT (SEED AND SHELL)

R. K. Kadam and V. D. Nanoty
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *roshnik2302@gmail.com*

Cucurbita pepo (pumpkin, gourd) is an economically important member of the Cucurbitaceae family. The transformation of by-product and wastes generated by agro-food companies is of high importance since only a small portion of plant material is utilized directly for human consumption. The aim of this study was to evaluate the potential of these wastes as sources of beneficial and bioactive compounds (antibacterial and antioxidant) potential of the peel and seeds of Cucurbita pepo (pumpkin) against Enteric pathogens using Kirby-Bauer disk diffusion method. The samples (seed and shell) were oven-dried followed by the extraction with 70%ethanol.Ethanolic extract of pumpkin peel and seed exhibited the maximum zone of inhibition against S*taphylococcus aureus* (20mm), *Escherichia coli* (8mm), *Pseudomonas aerogenosa* (17mm). The screening of antimicrobial properties of extracts of *C. pepo* peel and seed revealed that the ethanolic extract possessed good antimicrobial efficacy and could be potential source for new class of antibiotics.

A-58

ISOLATION AND IDENTIFICATION OF BACTERIA FROM DIFFERENT PARTS OF CELL PHONES

P. S. Shete, S. S. Morey and V. D. Nanoty
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *punamsshete@gmail.com*

Personal mobile phone is part of human accessories and used in every moment. The ability of the microbes to survive on the touch-pads of the smart phone makes it as one of the important fomites in the spread of microorganisms between users. In general the rate of bacterial contamination in mobile phones is 100%. Total 25 mobile samples included in this study for isolation of bacteria and 12 selected colonies of bacteria isolated from mobile phones were further processed. Out of these colonies, we found *Escherichia coli, staphylococcus aureus, Bacillus spp. Proteus spp. Pseudomonas aeruginosa.* The finding of this research indicates that bacteria isolated and characterized from mobile phones are known to cause infections in human beings; therefore sharing of mobiles, usage of mobile during eating should be discouraged. Personal hand hygiene is very important and also washing of hand before and after handling of food and phone contamination should be adopted by people to prevent cross and self contamination by these bacteria.

A-59

MICROBIAL PROFILING OF RHIZOSPHERIC PIGMENTS PRODUCERS AND ITS APPLICATION IN TEXTILE DYEING

K. E. Paraskar, S. J. Maheshwari and V. D. Nanoty
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *kanchanparaskar22@gmail.com*

Biological pigments are substances produced by microorganisms that can produce color resulting from selective color absorption. These pigments from natural sources act as a natural dye and are a good alternative to synthetic dyes. Both natural pigments and synthetic dyes have been extensively used in various fields of everyday life, such as foods, textile, paper, printing, inks, cosmetics, etc. As a result, various synthetic food colors have been manufactured but many of them comprise various hazardous effects. So there is an increasing demand for natural colors from industries as well as consumers. The aim of the present study was to isolate the microorganisms which are capable of producing color pigments with antimicrobial activity. Natural pigments possess anticancerous activity and have some desirable properties like stability to light, heat and pH. Natural colorants or dyes are believed to be safe because of non-toxic, non-carcinogenic and biodegradable. The advantage of pigment production from microorganisms comprises easy and fast growth in the cheap culture medium, independence from weather conditions and color of different shades, for obtaining pigment from microorganisms. Different soil samples were collected from different areas under different climatic conditions. Collected soil samples were used for serial dilution up to 10^{-9}. 10^{-4} to10^{-9} dilution were placed on sterile nutrient agar plates and kept for incubation at 37°C for 48 hrs. The important step included for isolation of pigments producing microorganism these were separated with the help of morphological characteristics and biochemical identification, etc. Yellow, orange and red color pigments were obtained from microorganism such as *Streptomyces sp.* and *micrococcus sp*. The produced pigments were assessed for dyeing application in textiles.

A-60

UNDERSTANDING THE BASICS OF NEXT GENERATION SEQUENCING: A REVOLUTIONIZING RESEARCH BY INSILCO ANALYSIS

Urja Shah[1], Akanksha Bagade[2] and Sushil M. Nagrale[3]
[1]Department of Bioinformatics, Vel's University, Chennai
[2]Department of Bioinformatics, Shri Shivaji Science College, Amravati
[3]Department of Zoology, Shri R.L.T. College of Science, Akola (MS), India
E-mail - *urja30.us@gmail.com, bioinfo.akanksha@gmail.com, sushilnagrale_rlt@rediffmail.com*

Next generation sequencing (NGS) is revolutionizing research, enabling experiments that weren't possible before. The new DNA sequencing technology is referred as NGS. NGS is a sequencing technique at high speed and at low cost which is also known as massively parallel sequencing. To make you understand the newest NGS methodologies, here we provide a basic overview of what is NGS and how NGS works by comparing it with Sanger Sequencing, qPCR and RNA sequencing. NGS technology is used for Family Tree DNA, Whole-genome sequencing test, mitochondrial DNA full sequencing test. NGS involves three steps of library preparation, sequencing and data analysis.

A-61

ASSESSMENT OF ANTIMICROBIAL ACTIVITY OF *TAGETES ERECTA*

R. K. Lahoti, S. A. Toshniwal and U. K. Bhalekar
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *toshniwal256@gmail.com*

The study was to investigate the chemical constituents and antimicrobial activity of methanolic flower extract of *tagetes erecta* (Pot marigold). It belongs to Asteraceae family which is a popular garden plant with strong aromatic essential oil, mainly used in perfumes. It has been documented for its antimicrobial, anti-inflammatory properties against the gram positive (*Staphylococcus aureus*).The fresh flowers were collected from the nearby locality. The flowers were dried, crushed and powdered. The dried powdered sample was subjected to solvent extraction and phytochemical extract was made by using methanol as solvent. Phytochemical tests were done using standard protocol. The methanolic extracts were subjected to Antimicrobial tests against test organism. The observations for the inhibitory activity of the extracts were recorded and observed. The methanolic extract of the flower was found effective against *S. aureus* with the zone of inhibition around 22mm. In the phytochemical screening test of the sample extract Tannins, Cardiac glycoside, and trepenoids was found to be present. Hence, methanolic extract of *tagetes erecta* was found antimicrobial against pus forming skin infection organism.

A-62

ASSESSMENT OF EFFICIENCY OF CARP PITUITARY EXTRACT, OVAPRIM, OVATIDE AND COMBINATION ON BREEDING PERFORMANCE OF ASIATIC CATFISH, *CLARIAS BATRACHUS*

Tushar G. Deshmukh
Department of Zoology, Shri Shivaji College of Arts, Commerce and Science, Akola
E-mail - *malhartushar8007@gmail.com*

Experiments were conducted to evaluate the breeding performance in Asiatic catfish, *Clarias batrachus* at 40mg dose of Carp Pituitary Extract (CPE), 1ml dose of ovaprim & Ovatide and combination of CPE+ovaprim+ovatide (10mg+0.1ml+0.1ml) dose. The breeding performance was observed on the basis of latency period, fecundity, fertilization and hatching percentage and deformed larvae percentage. The results indicated that the total fecundity was highest ($P<0.05$) when female fish injected with combination dose than CPE, ovaprim and ovatide doses individually. The latency period (14.00hrs) was lower at combination dose than other inducing agents. More fertilization and hatching percentage was also observed at combination dose i.e. 88.95% & 82.27% respectively. More normal larvae were produced in all inducing agents treated fish but combination dose was most promising.

A-63

COMPARATIVE PHYTOCHEMICAL SCREENING OF LEAVES OF *PELTOPHORUM PTEROCARPUM* AND *TEPHROSIA PURPUREA*

Anjali Sangole and Shailendra Madavi
Department of Botany, Shri R.L.T. College of Science, Akola (MS), India
E-mail - *anjalisangole05@gmail.com, shailendramadavi2@gmail.com*

Flower of *pletophorum pterocarpum* and *Tephrosia purpurea* have been used for several purposes such as medicine, food and garnishing. The present study investigated on phytochemical analysis of leaves of *Peltophorum pterocarpum and Tephrosia purpurea* was carried out. *Peltophorum p.and Tephrosia p*. is belongs to family Fabaceae and has been widely used for therapeutic applications of the many diseases. The phytochemical study of various extracts of leaves *of Peltophorum pterocarpum* and *Tephrosia purpurea* revels the presence or absence of phytochemical components such as Tannin, Saponin, Flavonoid, Phenol, Alkaloid was carried out.

A-64

STUDY OF DRUGLIKENESS PROPERTY OF SYNTHESIZED CINNAMAMIDE CONTAINING HETROCYCLIC MOIETY

Suryakant B. Borul* and Santosh V. Agarkar
Department of Chemistry, Late Ku. Durga K. Banmeru Science College, Lonar-443302, Dist.-Buldana (MS)
E-mail - *sbb_06@rediffmail.com*

Druglikeness concept helps to optimize pharmacodynamics and pharmaceutical properties, such as solubility, chemical stability, bioavailability, and distribution profile. Druglikeness is a qualitative concept used in drug design for how druglike a substance is with respect to factors like bioavailability. It is a model of various molecular properties and structural features which identify the molecule can be a potential of drug or not. Drug likeness is a broad term used to define absorption distribution metabolism excretion and toxic (ADMET) properties of a drug molecule. It is estimated from the molecular structure before the substance is even synthesized and tested. Drug-likeness rules are set of guidelines for the structural properties of compounds, used for fast calculation of drug like properties of a molecule.

In present work synthesized cinnamamide containing heterocyclic moiety compounds before the antimicrobial screening tests, compounds under the study of druglikeness properties by using Data Warrior, specializes as data visualization and analysis tool for chemical and biological data. The data obtained in druglikeness study is useful for selection of synthesized compounds for antimicrobial screening tests.

A-65

ICHTHYOFAUNAL DIVERSITY OF KUMBHAR KINI DAM, DARWHA, DISTRICT YAVATMAL, M.S., INDIA

Shubhangi B. Misal
Department of Zoology, Shri Shivaji College of Arts, Commerce and Science, Akola
E-mail - *smisalgawande@gmail.com*

The survey was under taken for Ichthyofaunal diversity study in Kumbhar Kini Dam, Darwha of Yavatmal District.The survey was mainly focused on Ichthyofaunal diversity. Total of 34

species belonging to 06 orders (Cypriniformes, Perciformes, Siluriformes, Synbranchiformes, Beloniformes and Osteoglossiformes) and 11 families were recorded. These families were; Cyprinidae (20), Bagaridae (03), Ambassidae (02), Mastocembelidae (02), Cobitidae (01), Cichlidae (01), Gobiidae (01), Channidae (01), Siluridae (01), Belonidae (01) and Notopteridae (01), of these species; 07 were Abundant, 10 were Common, 04 were Frequent, 07 were Occasional while 06 were rare. This is first ever study on the fish diversity of this reservoir and would help in explore the fish fauna of Kumbhar Kini dam.

A-66

STUDIES ON FORMATION CONSTANT OF Co(II),Ni(II),Cr(III) ION COMPLEXES WITH SOME HYDRAZONES BY PH-METRICALLY, SPECTROPHOTOMETRICALLY AND REFRACTOMETRICALLY

Umesh P. Meshram*, Gaurav B. Pethe and Amit R. Yaul
Department of Chemistry, Narayanrao Kale Smruti Model College, Karanja Ghadge, Dist.-Wardha, Maharashtra, India

Spectrophotometric investigation of Co(II), Ni(II) and Cr(III) complexes with 2,4-dihydroxyacetophenon-2,4-dichlorobenzoylhydrazone(H_1L_1), 2,4-Dihydroxy-5-itroacetophenon-2,4-dichlorobenzoylhydrazone(H_2L_2), showed 1:1 and 1:2 complex formation between the pH range of 3.0 to 6.0 studied by jobs variation method at 0.1M ionic strength at 30^0C spectophotometrically. The conditional stability constant are determined for 1:1 complexes at pH3.0 and molar refraction and polarizibility constant for $H_1L1$and H_2L_2 at different percentage of dioxane have also been calculated.

A-67

SPECIES RICHNESS AND DISTRIBUTION OF ROTIFERS IN LENTIC ECOSYSTEM OF SONALA DAM, SONALA, DISTRICT WASHIM (M.S.)

U. P. Lande
Derpartment of Zoolgy, Shri Shivaji College of Arts, Commerce and Science, Akola (MS), India
E-mail - *landeujwala@gmail.com*

Sonala dam is an earthen dam, constructed by irrigation department of Maharashtra Govt. The dam is presently used for irrigation and drinking for regional rural areas. Rotifers are microscopic soft-bodied fresh water invertebrates, which have been used to indicate the tropic status of a water body. They are one of the connecting link organisms between primary producers and consumers in aquatic food web. The present study reports the species richness and diversity of rotifers in Sonala dam, Sonala, Dist. Washim. Quantitative assessment of rotifers was undertaken during February 2012 to January 2013. During the study period total 16 species of rotifers were collected from Sonala dam. Conservation of this water body is essential, as this habitat may reveal interesting rotifer fauna present there. There is no report of study on the species richness and distribution of rotifers in this reservoir and that is the reason the present study was planned.

A-68

A PRELIMINARY SURVEY OF WILD EDIBLE FRUITS NECESSARY FOR BALANCED HEALTHY DIET FROM AKOLA REGION

V. S. Patil and V. P. Wankhade
Department of Botany, Shri Shivaji college of Arts, Commerce and Science, Akola
E-mail - *dandge.vaishali@gmail.com*

Wild edible fruits are an important group of edibles, which contribute to the rural and tribal communities, nutritional requirements. Much of their vitamin and mineral needs are met by this category of food .In all about 600 kinds of edible fruits are known, out of which 100 fruits are more agreeable types. They are important source of both digestible and indigestible carbohydrates. However their consumption is very low in the world. These fruits can help to solve some nutrition related concerns and play positive role in delivering a healthy and balanced diet. So people need to educate using various forms of media on the nutritional healthy benefit of the wild fruits.

A survey was done in Akola region situated in Vidarbha in state of Maharastra in central India. Near about 41 plants were collected from 27 families. All edible plants collected from different places, belong to Angiosperm. The most common plants from families are Anacardiaceae, Caesalpinaceae, Sapotaceae and Moraceae.

A-69

COMPARATIVE MICROBIAL ANALYSIS OF EXPIRED AND UN-EXPIRED COSMETIC PRODUCT

V. N. Sharma, M. M. Deshmukh and U. K. Bhalekar
Department of Microbiology, Shri R.L.T College of Science, Akola
E-mail - *vaishnavisharma323@gmail.com*

Cosmetics are products of chemical or natural origin dedicated specifically for use in skin and mucosa. The constant development of cosmetic industry has generated the necessity to carry out microbial analysis on the raw material used in the industrial production of cosmetics as well as the final product, with the purpose of obtaining the products of good microbial quality since such products are recognized to be the substrates for the survival and development of a large variety of microorganisms as they possess nutrients that facilitate growth. The aim of this study was to assess the level of microbial contamination of cosmetics used by several people and cosmetics after their expiry date in relation to standard for marketed cosmetics, ensuring safety for their use. The study was conducted using samples divided into two groups: Expired and Un-expired. In cosmetic samples the general numbers of aerobic mesophilic bacteria were determined with the spread plate method on different selective and differential media. The presence of *S. aureus E. coli, Bacillus sp.* and *fungal sp.* were also checked. Cosmetics after the expiry date showed the highest microbial contamination.

A-70

ASSESSMENT OF SPIDERS DIVERSITY AND COMPOSITION ALONG THE GRASSLAND NEAR CHARGHAD RIVER MORSHI, DISTIRCT AMRAVATI, MAHARASHTRA

U. S. Deshmukh and A. P. Tekade
Department of Zoology, Government Vidarbha Institute of Science and Humanities, Amravati-444604 (MS), India
E-mail - *ujjwaladeshmukh@rediffmail.com, anuranjanprakash92@gmail.com*

Spiders are at the pinnacle of the lower food web. Definite information on structural patterns of species richness and species distribution is significant for conservation. In this study assess and compare the effect of environmental variation on spider species from September 2018 to March 2019 in different microhabitat (open, grass, trees, foliage) across heterogeneous grassland. A total of 50 species from 28 genera belonging to 11 families where recorded. Among them 18 species belonging to family Salticidae followed by family Araneidae with16 species where most abundant of total species recorded. Followed by Oxyopidae (4 species), Thomisidae (3 species), Hersilidae (2 species), Lycosidae (2 species) and Erasidae, Gnaphosidae, Sparassidae, Theridiidae, Uloboridae comprises one species each. Since the spiders have expanded zone of predation the variation is highly affected by vegetation structure and distinct microhabitat in the study area. The study suggested that the environmental structure of habitat influence the diversity and composition of spiders.

A-71

IN VITRO MICROPROPAGATION OF *CAREYA ARBOREA* ROXB. (LECYTHIDACEAE) THROUGH SHOOT TIP EXPLANT IN MS MEDIA

D. M. Wankhade, S. P. Rothe and A. A. Maheshwari
Department of Botany, Shri Shivaji College of Arts, Commerce and Science, Akola
E-mail - *dplsirsat@gmail.com*

This study was developed to standardize a protocol for micropropagation of high valued medicinal plant species - *Careya arborea* Roxb. Experiment was achieved multiple shooting and rooting from shoot tip explant. MS media and various growth regulators with different combination were used during the course of work. In combination of IBA 2.5 mg/l, BAP 1.5 mg/l and KN 1.0 mg/l was showed maximum percentage of shoot induction after 30 days of inoculation viz. 48.33 %. The highest percentage of root induction was observed in combination of high concentration of IBA 4.5 mg/l and low concentration of KN 2.0 mg/l viz. 38.50 %. Micropropagation is most popular techniques of plant tissue culture. Plant tissues and any organs or any explant grow *in vitro* on artificially prepared nutrient cultured medium.

A-72

ISOLATION AND IDENTIFICATION OF AM FUNGI FROM SOME SPICES OF GURUKUNJ AND MOZRI REGION (M.S.)

Lubna P. Khalid and Shraddha P. Jambhole
P.G. Department of Botany, Vidyabharati Mahavidyalaya, Amravati
E-mail - *lubnakhalid180@gmail.com*

Arbascular mychorhiza enhance the soil fertility and soil quality by increasing minerals amount in soil. In the present work some spices are selected and observed the AM diversity in it they are *Allium cepa(Onion)*, *Zingiber offcinale(Zinger)* and *Curcuma longa(Turmeric).* All three spices samples collected from different sites of Mozari and Gurukunj Ashram region Maharashtra. VAM spores isolated from the soil sample by Wet sieving and decanting technique by Gerdemon and Nicolson,1963 and counting it by the procedure described by Gaur and Adholey;1994. In the present work Observed species in all three spices are *Glomus.aggregatum, Glomus albidum, Glomus glomeralatum, Glomu scitruculata, Glomus albidium, Glomus fassiculatum, Aculospora bireticulatum, Aculospora sporocarpa, Aculospora foveata, Aculospora bireticulatum, Aculospora scrobiculata, Aculospora delicate, Gigaspora gigantean, Gigaspora gigantum* and *Entrophospora kantinensis* but most dominant observed AM spores are *Glomus aggregatum* and *Glomus fasciculatum* and *Aculospora bireticulata*.

A-73

OLEOCARPON INTERTRAPPEA DRUPACEOUS FRUIT FROM DECCAN INTERTAPPEAN BEDS OF CENTRAL INDIA

S. W. Dighe[1] and P. S. Kokate[2]
[1]Department of Botany, Shri Pundlik Maharaj Mahavidylaya, Nandura-1
[2]Department of Botany, Shri Shivaji Arts, Commerce and Science College, Akola-2
E-mail - *suchitadighe11@gmail.com, pratikshakokate811@mail.com*

Mohgaonkalan is the well known locality of the Deccan Intertrappean series, in Chhindwara district of Madhya Pradesh. Some monocotyledonous and dicotyledonous fruit are also described from the same locality.

Present fossil specimen is unilocular large single seeded drupe, 2.33 mm long and 2.03 mm broad in longitudinal in section. Fruit fleshy, globose in shape. Pericarp differentiated into epicarp 0.266 µ, mesocarp is 1.33 µ to 2.66 µ and endocarp 0.399 µ in thickness. Epicarp thick walled, compactly arranged constituting 2-3 layered. Mesocarp not uniform in thickness , the cells are parenchyamatous with few intercellular spaces endocarp hard. Vascular bundle not seen Seed large and endospermic.

The present fossil fruit is compared with already reported fossils and living families Cannaceae, Marantaceae, Commelinaceae, Liliacaea,Typhaceae, Pandanaceae, Araceae, Potamogetonaceae, Cyperaceae The fossil fruit shows close affinities with two genera of family Oleaceae like *Linociera* and *Olea.*

Then present fossil fruit resembles with genus *Olea* in structure, in having fruit drupe with fleshy mesocarp and seed solitary, ellipsoid slightly pointed and cotyledon flat with bony endocarp and thin testa showing close affinities with genus *Olea* from family Oleaceae so named as *Oleocarpon* after the name of genus specific name is *intertrappea* after the Deccan Intertrappean Beds of India.

A-74

INVENTORY OF ANTIMICROBIAL POTENTIAL OF *PHOLCUS PHALANGIOIDES* SPIDER'S SILK ON E. *COLI* AND *S. AUREUS*

U. S. Deshmukh and A. S. Pansare
Department of Zoology, Govt. Vidarbha Institute of Science and Humanities, Amravati
E-mail - *ujjwaladeshmukh@rediffmail.com, ankitapansare2022@gmail.com*

Antimicrobial activity of *Pholcus phalangioides* spider silk was observed against two bacteria *Escherichia coli* and *Staphylococcus aureus*. Extracts of silk with different solvents i.e. ethanol, methanol and acetone with proportion as 1gm dissolved in 10ml were prepared. Cultures were prepared of two bacteria *E. coli* and *S. aureus,* separately loaded with silk extracts and observed after 24 hours for zone of inhibition. Zone of inhibition was measured in diameter. Solvents without silk do not show any antimicrobial activity whereas extracts in ethanol, methanol and acetone showed zone of inhibition as 10 mm, 13 mm and 12 mm diameter for *E. coli* and 8 mm, 10 mm, 14 mm for *S. aureus* respectively.

A-75

ONE POT SYNTHESIS, CHARACTERISATION AND BIOLOGICAL ACTIVITY OF THIAZOLIDINONE

Nadeem A. Sheikh
P.G. Department of Chemistry, Amolakchand Mahavidyalaya, Yavatmal
E-mail - *nadeemsheikh303@gmail.com*

It was through interesting to synthesized thiazolidin-4-one. A simple and efficient procedure for the synthesis of thiazolidinone. In this work some new substituted thiazolidinone have been reported in one pot synthesis. Thiazolidinone were obtained from substituted aromatic aldehydes, substituted aromatic aniline in presence of sodium acetate. Nucleus plays a vital role in anti-microbial, anti-inflammatory, antibacterial, anticancer anti-tubercular, anti-inflammatory and as antiviral agents, especially as anti-HIV etc. The Characterization of this compound was made by chemical property, elemental analysis as well as spectral analysis (Like IR, H^1-NMR).

A-76

DETECTION OF VARIOUS NUTRITIONAL SUBSTANCES FROM MOBILE VEGETABLE WASTE DECOMPOSER MATERIAL

Swapnil P. Tinkhede, Pratibha S. Mahalle, Gajendrasingh Pachlore and Subodh Bansod
Vinayak Vidnyan Mahavidyalaya, Nandgaon (Kh.), Dist.-Amravati (MS)
E-mail - *swapnil.tinkhede797@gmail.com*

In the present study a well distributed pattern of various nutritional components were studied such as sulphur, Calcium, Nitrogen, Phosphorus and iron etc. from daily generated vegetable kitchen waste material. In this method the daily generated vegetable waste is collected and decomposed by using organic powder to produce a decomposed organic matter that contains a mixture of nutritional substances. These nutritional substances are collected, analyzed and the remaining mixture is given to plants. Plants require various nutritional elements for their growth and flowering. Plants show a tremendous response to the decomposed organic material. This

vegetable waste material is a good source of nutritional substances and also it eradicates the waste material from home.

A-77

EFFECT OF BIOPESTICIDE VIP3 ON BIOMOLECULES CONTAINT AND GROWTH PARAMETERS OF *HELICOVERPA ARMIGERA,* A DEVASTATING AGRICULTURAL PEST

Prachi Pimparkar

Helicoverpa armigera, Hubner (Lepidoptera - Noctuidae) is the major agriculture pest which feed on all types of crops causing extensive economical lost. Ability of *Helicoverpa armigera*, to survive on diverse host plant is its adaptive mechanism. Bioinsecticide called vegetative insecticidal protein Vip3 has been discovered from *Bacillus thurigiensis* (Bt) during its vegetative growth phase is considered as having insecticidal activity against many lepidopteran pests. Physiological and morphological effect of Vip3 biopesticide on *Helicoverpa armigera* is studied in this research. Vip3 causes remarkable reduction in the amount of major biomolecules such as Carbohydrate, Proteins, Lipids and Uric acid in the haemolymph and midgut tissue of *Helicoverpa armigera* and it directly impairs the growth of this devastating agriculture pest.

A-78

COMPARATIVE ANALYSIS OF *IN VITRO* ANTIFUNGAL ACTIVITY OF DIFFERENT HONEY SAMPLES

Nisha V. Warade
Department of Zoology, Shankarlal Khandelwal Arts, Science and Commerce College, Akola-444002, Maharashtra, India
E-mail - *drnisha73@gmail.com*

Fungus *Aspergillus* causes many human diseases like Aspergillosis, frequent among horticultural workers who inhale peat dust, which can be rich in Aspergillus spores. *Aspergillus niger* is also one of the most common causes of otomycosis (fungal ear infections). The problems with current chemical and artificial antifungal agents, led to the choice of honey as well as other natural products by the populace, in the treatment of fungal infections. The healing property of honey is due to the fact that it offers antimicrobial activity, maintains a moist wound condition, and its high viscosity helps to provide a protective barrier to prevent infections. Since honey has been found to possess antimicrobial property, it is therefore employed in wound managing therapy. The present study screened the antifungal spectrum and efficacy of three different honeys and compared same with a well-known Clotrimazole antifungal drug. In the present study, the antimycotic activity was investigated by Agar well diffusion method using 3 different unifloral honeys i.e. Arni (*Clerodendrum multiflorum*), Lemon (*Citrus limon*) and Ajwain (*Trachyspermum ammi*) against *Aspergillus niger* fungus. On comparing the zone of inhibition it can be suggested that all the honeys inhibited the growth of fungus but Ajwain honey showed maximum inhibition toward the fungus, compared to lemon and Arni honey. Further from observation, it can be concluded that Ajwain honey showed most inhibitory effect with inhibitory zone diameter of 31 mm suggesting its high antifungal activity. Arni honey showed lowest inhibitory effect with inhibitory zone diameter of 24 mm and hence it can be concluded that honey from Ajwain would be more potent in managing fungal diseases among the three samples evaluated.

A-79

FLORICULTURE: A PROMISING INDUSTRY

M. W. Bhade[*1] and P. A. Kolhe[2]
[1]Department of Chemistry, Amolakchand Mahavidyalaya, Yavatmal-445001
[2]Department of Chemistry, Vidyabharati Mahavidyalaya, Amravati-444602
E-mail - *madhuri.bhade@gmail.com*

Floriculture or flower farming is a discipline of horticulture concerned with the cultivation of flowering and ornamental plants for gardens and for floristry, comprising the floral industry. The flowers have a unique place in the life of every human being irrespective of his country, caste and religion. Indian floriculture which was in the hands of small and marginal farmers but now has developed into a highly professional business. Consequently the cultivation of flowering plants and production of flowers have emerged as an industry promising to great employment potential. Due to enormous genetic diversity, varied agro climatic conditions in India, it has a blooming future as far as floriculture is concerned. Floriculture thus, offers a great opportunity to farmers in terms of income generation and empowerment. Floriculture has emerged as an important agri-business, providing employment opportunities and entrepreneurship in both urban and rural areas. It has been found that commercial floriculture has higher potential per unit area than most of field crops and is therefore a lucrative business. Perfumery and aromatherapy are the another demanding fields as essential oils and flower essences are two great ways to take advantages of nature's healing qualities. Floriculture also offers careers in production, marketing, export, teaching and research. Hence nowadays floriculture sector is highly organized and growing with a great economic value.

A-80

PRODUCTION OF BIOGAS USING FOOD AND VEGETABLE LEFTOVERS

S. A. Toshniwal and V. D. Nanoty
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *toshniwal256@gmail.com*

Biogas is a non-polluting, eco-friendly fuel produced by anaerobic digestion of organic waste, which generally comprises of 55-65 % methane, 35-45 % carbon dioxide, 0.5-1.0 % hydrogen sulfide and traces of water vapour. The main objective behind the work was to find an alternative and viable source of energy for household consumption. The work focuses on production of biogas from substrate consisting of leftover foods and vegetables (kitchen waste). Generally, it takes about 50-60 days for a newly made biogas plant to start the production of biogas but in the present work it was done in short period of 20-30 days. At the 21st day, the observed gas flame with an intense blue colour which indicates presence of biogas (Methane). The effect of substrate and temperature on biogas production was studied. It was also found that if the substrates such as spoiled flour, whey, crushed vegetables, cow dung gives a good yield of biogas. The above stated findings were observed by constructing a small prototype biogas plant. During the summer season (34^{o}C-40^{o}C), an increase in the production of biogas was observed. After using biogas at home it was found that the consumption of Liquefied Petroleum Gas (LPG) Cylinders on an average was reduced by 40-50%. Traditional (Concrete based) biogas plants need a large space along with high investment with low durability. Whereas this household model requires less space with small investment and long durability. Also the initial investment for the biogas plant is affordable because it becomes cost effective due to its durability.

A-81

PENDIMETHALIN INDUCED CARBOHYDRATE ALTERATION IN FRESH WATER TELEOST FISH CHANNA PUNCTATUS (BLOCH-1793) AFTER ACUTE EXPOSURE

Syed Danish, Jayashree Dhote and Aqib Hussain
Department of Zoology, Shri Shivaji Science College, Amravati-444603, India
E-mail - *danish2074@gmail.com*

Bio-accumulative compounds after entering in the ecosystem brings out drastic changes in the consequent food chains and food webs. One such bio-accumulative compound Pendimethalin (C13H19N3O4) was being under consideration during this work on the acute exposure to fish liver, muscle, gills and the excretory orans on *Channa punctatus*. The LC_{50} values of pendimethalin for 96 hours were 1.16 ml/liter. These fishes were subjected to sub-lethal concentrations (1/2nd is 0.58ml/liter). On exposure the carbohydrate levels were found to be deteriorated. Therefore, the hasty decrease in the content will interrupt the overall metabolism because of the huge need of metabolic utilization of the ketoacids to gluconeogenesis pathway in the formation of glucose or for the maintenance of osmotic and ionic regulations.

A-82

QUALITATIVE PHYTOCHEMICAL ANALYSIS OF DIFFERENT PARTS OF LANTANA CAMARA

Kishor S. Itankar and Yogesh P. Thawari
Department of Chemistry, Nevjabai Hitkarini College Bramhapuri-441206, Dist.-Chandrapur
E-mail - *kishor.itankar@gmail.com*

Lanthana is native to subtropical and tropical America and also in India. It occurs approximately in 50 countries, where several Lanthana species varies from 50 to 270 specific and sub specific entities. In India 7 to 8 Lanthana species id occurs namely- L. Camara, L. Indica, L. Veronicifoila, and L. Trifolia. Amongs them L. Camara is widely noticed in sayghata forest of Bramhapuri taluka of Chandrapur district. The existing research take part in qualitative phytochemical analysis of various parts of L. Camara, the analysis was carried out for the presence of alkaloids, terpenoids, anthocyanin, flavonoids, reducing sugar etc. The point such analysis is due to the medical uses of Lanthana species. It shows the antibacterial activity, Cytotoxic activity, antifungal and antimotality activity and many more which was already reported. So it is needed to perform qualitative analysis of L. Camara species occurs in Bramhapuri region. The detail examination of various parts of L. Camara was carried out from petroleum extract prepared by Soxhlate.

A-83

ALTERATIONS IN SERUM PROTEINS DURING ADDICTION TO OPIOID DRUGS

R. L. Rahatgaonkar
Department of Zoology, Shri R.L.T. College of Science, Akola

Opioid drugs are indicated for the management of pain in patients where an opioid analgesic is appropriate. They can be administered through a variety of drug dosage forms. The most common opioid drugs are available in oral as well as inject able formulations. The male albino mice were made addicted opium by administrating (im) small doses of opioid drugs

"Contramal" daily for 60 days. After 60 days the mice were sacrificed for investigations pertaining to serum protein profile and haematological alterations. Significant increase in α2 and ϒ globulins was recorded indicating nephrotoxic and hepatotoxic effect of contramal after long term addiction.

A-84

ANALYSIS OF PHYTOCHEMICALS AND ANTIOXIDANT PROPERTY PRESENT IN THE FENUGREEK PLANT

V. D. Mane and A. P. Chopade
Department of Chemistry, Shankarlal Khandelwal Arts, Science and Commerce College, Akola-444002 (MS), India
E-mail - *vivekvdm@rediffmail.com*

Fenugreek (Trigonella Foenum-Graecum) leaves are beneficial in the treatment of indigestion and cure for sluggish liver. It is used to show antidiabetic activity, antioxidant activity. The present investigation was undertaken to screen the phytochemical analysis and antioxidant activity of fenugreek (*Trigonella Foenum-Graecum)* plant extracts. The result showed that the plant has good antioxidant property.

A-85

DEVELOPMENT OF HERBAL MOSQUITO REPELLENT

R. S. Pachori, S. A. Toshniwal and U. K. Bhalekar
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *rupeshpachori1031@gmail.com*

Medicinal plants contain numerous biologically active compounds which are helpful in improving the life and treatment of disease. Many chemicals have been used for the purpose of mosquito repellency or killing. However they are extremely harmful for human being as well. Present study is plant based repellent for mosquitoes for personal protection measures. The product developed that offers high repellency as well as good consumer safety. Thus, this plant based repellent made from five plants leaves i.e Lemon grass (Cymbopogon citrate L), Lantana, Calotropis and Neem were collected from botanical garden. Soxhlet extraction of these plant leaves was carried out in methanol. The result of different percentage of blended extract solution showed effectivity for particular time. It concluded the blended extract solution has the potential to be used as a repellent against very well.

A-86

SEASONAL VARIATION IN PHYSICOCHEMICAL PARMETERS OF WATER FROM SHAHANOOR DAM

Swapnil P. Tinkhede[1], Yashashree A. Gadhikar[2] and Seema Salve[2]
[1]Department of Zoology, Vinayak Vidhnyan Mahavidyalaya, Nandgaon (Kh.)
[2]Department of Zoology, Institute of Science, Nagpur
E-mail - *swapnil.tinkhede797@gmail.com*

From ancient time civilizations depends on fresh water bodies like lakes, reservoirs, rivers and wetlands. Water has unique property of dissolving large amount of substances in it. This

property of water brings about changes in its physical as well as chemical properties and ultimately the pollution. Evaluation of physiochemical parameters of water is essential to assess the quality of water for irrigation, fishing, and industrial processing. Physical parameters studied are Turbidity, light, TDS and Temperature and chemical properties are $P^{H,}$ Conductivity, dissolve O_2, $CO_{2,}$ Hardness, calcium, phosphate, Nitrate, fluoride etc. Samples were analyzed in the laboratory for physiochemical parameters. Some parameters like Temperature, pH, turbidity were recorded at the site. So in the present investigation an attempt has been made to study seasonal variation in physicochemical parameters of water of Shahanoor dam.

A-87

ZOOPLANKTON POPULATION IN UPPER WARDHA PROJECT, AMRAVATI (MS)

P. J. Awate
Department of Zoology, Late R. Bharti Arts, Commerce and Smt. S.R. Bharti Science College, Arni-445103, Dist.-Yavatmal (MS)
E-mail - *mr.prashantawate@gmail.com*

In Amravati district of Maharashtra, the Upper Wardha Project located at Simbhora, 8 K.M. away from Morshi and 56 K.M. away from District place. Zooplankton diversity was studied from this project which is one of the most ecological parameters as these are the intermediate link between phytoplankton and fish. They play a significant role in transferring energy in aquatic ecosystem as primary consumers and can be used as indicators of tropic phase of a water body. The study area was divided in to five sampling stations to cover the whole dam. Monthly sample were collected by filtering twenty liter water sample through standard plankton net of bolting silk cloth with 64µ mesh size and the concentrated sample were collected in 10 ml distilled water and were preserved in lugol solution and 4% formalin and observed during June 2013 to July 2014. Population abundance and Percentage of zooplanktons was in the order of Rotifer > Cladocera > Copepoda > Protozoa > Ostracoda > Worms & Larvae. Rotifers (27.90%), cladocera (16.76%), copepod (15.49%), protozoan (15.06%), ostracods (13.28%), worms and larvae (11.52%).

A-88

EVALUATION OF FARMER'S POTENTIAL FOR ADAPTATION OF ORGANIC FARMING IN AKOLA DISTRICT

D. D. Bhokare
Department of Microbiology, Shankarlal Khandelwal Arts, Science and Commerce College, Akola (MS)
E-mail - *bsagar_skc@rediffmail.com*

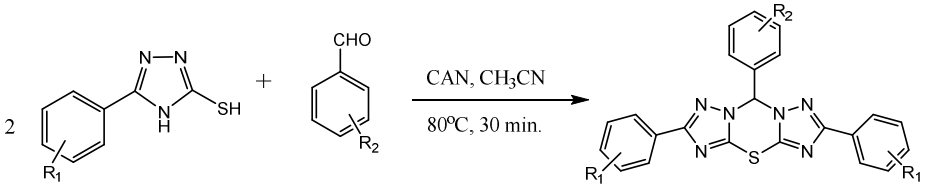
The aim of this study was to examine the potential of organic farming in Akola tahsil, for this study data was collected through survey of farmers in Akola tahsil. The survey revealed that 65.13% farmers have educational qualification upto $10/12^{th}$, this mainly influences the adaptation of organic farming. 70.64% farmers know about organic farming, but only 32.11% farmers interested to adopt organic farming in practice, if they get proper facility and surety of return while 43.11% farmers are not interested in organic farming due to no guarantee of high yield.

A-89

CAN-PROMOTED EFFICIENT SYNTHESIS OF BIS-TRIAZOLO-THIADIAZINE DERIVATIVES

Manan S. Patel and Kesur R. Ram
Department of Chemistry, Sardar Patel University, Vallabh Vidyanagar-388120, Gujarat, India
E-mail - *ramkesurr@gmail.com*

3-Mercapto-1,2,4-triazole derivatives had shown numerous type of biological activities. Synthesis of 3-mercapto-1,2,4-triazole fused heterocycles is a key area in which researchers are working from last few decades. Many triazolo-thiazine derivatives had been synthesized and shown good biological potency. Few synthesis of 1,2,4-triazolo-1,3,4-thiadiazine is also reported. Cerric Ammonium Nitrate (CAN) is highly used reagent in various organic transformations. Herein we are reporting CAN-promoted synthesis of bis-(1,2,4)-triazolo-(1,3,4)-thiadiazine. Reaction proceeds under mild conditions with good yields. Reaction worked well with diverse substitution pattern both in triazole and aldehyde.



R_1= -H, -NO_2, -Cl, -CH_3; R_2= -H, -NO_2, -Cl, -OCH_3

A-90

BIOCHEMICAL AND ORGANOLEPTIC ASSESSMENT OF TOMATO (*SOLANUM LYCOPERSICUM)*

M. M. Deshmukh[1] and U. K. Bhalekar[2]
[1]Department of Biochemistry, Shri R.L.T. College of Science, Akola
[2]Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *maithilee05@gmail.com*

Tomatoes (*Solanum lycopersicum)* have been used in culinary preparations worldwide. Along with other useful components, tomatoes contain lycopene, a carotenoid. This study aimed to determine the physicochemical properties and proximate principles of red tomatoes and develop a product using tomato. Sensory evaluation and organoleptic assessment of the product was performed to determine its acceptability in terms of different sensory and nutritional parameters. The physicochemical properties and proximate principles of red tomato were determined using biochemical tests. An edible product was developed from red tomatoes–red tomato candy. Questionnaires (Non-invasive and Invasive) were given to 38 semi-trained panelists for sensory evaluation and organoleptic assessment of the product. Data analysis was carried out to check the sensory and nutritional acceptability of the product, and if it can be developed and marketed. The results (per 100 g) reveal high moisture (93.323%) and ash content (4.1 g), indicating the presence of micronutrients in ample amounts. Macronutrients like carbohydrates (3.4 g), proteins (2.2 g), and dietary fiber were in abundance in tomato fruit, whereas lipid content (0.2 g) was very low. The nutrients like iron, calcium, phosphorus, sodium, and potassium were found in good quantities. Also, vitamin C (22.8 mg) and lycopene (2.23mg) were found in high quantities. The results of the sensory evaluation showed minimum awareness about the health

benefits of tomatoes and high organoleptic acceptance of the product. The high carbohydrate and less lipid content of tomatoes make it apt for patients. High moisture content helps in hydration. The sodium and potassium levels indicate that tomato is good for patients with cardiovascular diseases. Acceptable quantities of iron and calcium make it a complete food. Lycopene is a natural antioxidant that prevents lung, prostate, and stomach cancer. Consumers will not only incorporate tomato in their diets more frequently but also recommend it to others.

A-91

SPIDER DIVERSITY OF KATEPURNA SANCTUARY DISTRICT AKOLA (MS) INDIA

M. M. Shegokar and Prakash P. Ade
Department of Zoology, Shri Shivaji College of Arts, Commerce and Science, Akola

Spider diversity was studied during July 2011 to March 2012. During investigation 37 genera and 74 species were recorded from Katepurna Sanctuary. Prominent among them Salticidae (24%), Araneidae (19%), Thombicidae (14%) and Lycosidae (5%) and Oxipidae (5%) were recorded from different area of Katepurna wild life Sanctuary family,generic and species diversity were observed.

A-92

CHECK LIST OF BEETLES (ORDER-COLEOPTERA) FROM FOOT HILLS REGION OF SOUTHERN SATPUDA RANGE, MORSHI, AMRAVATI, MAHARASHTRA-444602 (INDIA)

Suhas M. Pidhekar
Post Graduate Department of Zoology, G.S. Science, Arts and Commerce College, Khamgaon-444303, Dist.-Buldana (MS), India
E-mail - *pidhekarsuhas@gmail.com*

Present study reported that 29 species were from foothills region of Southern Satpuda Morshi, Dist.-Amravati, two sub-order, Adephaga and polyphaga and Eight Families form Order-Coleoptera Sub-order Adephaga includes family Carabidae which represent 10 species. Sub-order Polyphaga includes seven (3) families namely Scarabaeidae, Coccinellidae. Sub-order Polyphaga represents 26 species out of which family Scarabaeidae contains 16 species, Coccinellidae includes 3 species, represents each. Most diverse family is the Scarabaeidae containing 16 species list diverse families are. Out of two sub-order studied, the dominant sub-order is Polyphaga (26 species) as compared to the sub –order Adephaga (10 species). Study was conducted in the month of July to October-2015 Collection was done at morning and night timing. Above result its collection of four month. This diversity may be due to high diversity of flora in the present study area with favorable environmental conditions. Satpuda range is the major hot spot of biodiversity of many vertebrates and Invertebrate. Study will provide useful information about diversity of beetles in the said area as well as provides baseline data for upcoming researchers and gives wide scope for further study in entomology and biodiversity.

A-93

DIVERSITY OF DIFFERENT BUTTERFLY SPECIES IN AKOLA REGION, M.S., INDIA

Dnyaneshwari Satarkar[1], I. A. Raja[2] and Rashmi P. Joshi[3]

[1]Shri Shivaji College of Arts, Commerce and Science, Akola

[2]B.S. Patel Arts, Commerce and Science College, Pimplegaon Kale

[3]Department of Zoology, Shri R.L.T. College of Science, Akola

Lepidoptera is an order of insect that includes butterflies and Moth about 180,000 Species of the Lepidoptera are described, in 126 families and 46 Super families, 10% of the total described species of living organism. Among insect, butterflies are the most beautiful and colourful creatures on the earth. Butterflies are very sensitive group to environment and are directly affected by changes in the habitats, atmospheric temperature, and weather conditions. They can be good indicators of environment changes. The present study was started comparatively to examine the diversity of butterflies from Akola city and Natural habitat around Akola. Collected butterflies were photographed. Morphological characters were noted down. Further identification with the help of field guides was done. The total of 20 species of butterflies belonging to five families were recorded during the study period from both the parts of study area. Most of the species were noticeably absent in the disturbed and human impacted sites and there was no occurrence of unique species in moderately disturbed areas comparable to those of less disturbed wild areas.

A-94

COMPARATIVE STUDIES ON FEEDING AND BREEDING BEHAVIORS OF DRAGONFLIES *ORTHETRUM SABINA* AND *BRACHYTHEMIS CONTAMINATA* AT WATER BODIES (*LIBELLULIDAE: ANISOPTERA*)

P. P. Rathod[*1], N. A. Manwar[2], S. S. Dhande[3] and I. A. Raja[4]

[1] Shri Shivaji College of Arts, Commerce and Science, Akola

[2]Mahatma Fule Arts and Science College, Patur

[3]Shri Dr. R.G. Rathod Arts and Science College, Murtizapur

[4]B.S. Patel College of Arts, Commerce and Science, Pimpalgaon Kale

E-mail - *poneprince@gmail.com*

Water bodies in all seasons are babel with the number of different Odonates. They aggregate there only for feeding and breeding. In the limited suitable area all different species are struggling to get resources and suitable abjuration on particular place for breeding. They compete with each other and interact in different fashion. This assemblage of different species with their competition and interactions ultimately affects the reproduction and its behavior in species. *Brachythemis contaminata and Orthetrum sabina* being most abundant dragonflies' species of *Libellulidae* family in the study area they vary in their reproductive activities in many fashions. Present study reported premating and postmating activities of these two selected species. Both species shows remarkable difference in feeding and breeding activities at water bodies. We found both were feeds on different flying insects encountered and had cannibalism behavior. They differed in copulation duration from few seconds to an hour in *Brachythemis contaminata and Orthetrum sabina* respectively.

A-95

SENSITIVE MICRODETERMINATION OF Nd(III) AND Eu(III) WITH PYROGALLOL RED IN PRESENCE OF CETYLDIMETHYLETHYL AMMONIUM BROMIDE

Gajanan W. Belsare* and Santosh G. Badne
Department of Chemistry, Shri Shivaji College of Arts, Commerce and Science, Akola
E-mail - *gwbelsare@gmail.com*

The complex forming reactions of Nd(III) and Eu(III) with Pyrogallol Red(PGR) in absence and presence of Cetyldimethylethyl ammonium bromide(CDMEAB) have been studied. It has been observed that the metal ions formed intense blue coloured complex with Pyrogallol red in the presence of Cetyldimethylethyl ammonium bromide with shift in λmax and increase in the absorbance value. The colour of the metal ions complexes found to be stable and instantaneous in presence of CDMEAB. The increase in the sensitivity and molar absorptivity of ternarty complexes facilitate the sensitive microdetermination of metal ions understudy in the given photometric range.

A-96

SPECTROPHOTOMETRIC PROFILES OF KNOEVENAGEL CONDENSATION REACTION OF THIOBARBITURIC ACIDS AND AROMATIC ALDEHYDES

Vinod D. Deotale and Madhukar G. Dhonde
Department of Chemistry, Shri R.L.T. College of Science, Akola-444001, MS
Department of Chemistry, Shri Mathuradas Mohota College of Science, Nagpur-444024, MS
E-mail - *vddeotale@gmail.com, madhudash2001@yahoo.co.in*

The reaction of aromatic aldehydes with 2-thiobarbituric acids (TBAs) in presence of acid catalyst and the factors affecting this reaction have been studied. The rate of formation of products has been studied by absorption technique depending on the type of 2-thiobarbituric acids, aromatic aldehydes and the other reaction conditions. 2-thiobarbituric acid reacted slowly with aldehydes, converted into products with or without catalyst in a different extent, first we observed that, the reaction is on progressively optimized at room temperature stirring subsequently other reaction conditions have been applied. When catalytic molar proportion of acetic acid has been loaded in the reaction vessel, then different colour appeared during the reaction by absorbing various wavelengths.

A-97

A NOVEL STUDIES OF SYNTHESIS OF NANOPARTICAL OF SOME MALTOSYL THIOBIURETS AND THEIR XRD, SEM AND MICROBIAL STUDIES

Ashish G. Sarap
Department of Chemistry, Shri R.L.T. College of Science, Akola-444001, Maharashtra, India
E-mail - *sarap.aashish1@gmail.com*

The chemistry of thiourea of carbohydrate is extensively elaborated and well documented. The use of microwave irradiation in organic synthesis has become increasingly popular within the pharmaceutical and academic arenas, because it is a new enabling technology for drug discovery and development. A huge number of research papers have appeared over the last decades on the application of microwave technology in organic synthesis. By taking advantage

of this efficient source of energy, these compounds arouse interest as potential biologically active substances and versatile intermediates for preparing various derivatives. They have been found useful in the treatment of hypertension, as appetite suppersant and as a potential anti oxidant cardio protective agent. Chemistry of sugar isocyanate with special reference to their utility as intermediate in the synthesis of nitrogen and sulphur containing open chain and cyclic compound, several lactosyl thiobiurets deravaives has been prepared by condensation of hepta-O-acetyl-B-D-maltosyl isocyanate with various aryl thiocarbamides by microwave method. The identities of newly synthesis co,mpounds have been established on the basis of usual chemical transformation and IR, NMR, Mass spectral studies.

A-98

NEW DRUG ANALOGUE DESIGN FOR BREAST CANCER USING DRUG DESIGNING APPROACH

R. Ingale[1], R. Nanhe[1], M. Reddy[2] and S. Ingle[1]

[1]P.G. Department of Bioinformatics, Shri Shivaji Science College, Amravati

[2]Aravinda Biosolutions Pvt. Ltd., Windsor Plaza, Shankermutt, Nallakunta, Hyderabad

E-mail - *bioinfo.sham@gmail.com*

Breast cancer treatment using a single drug is associated with a high failure rate due, in part, to the heterogeneity of drug response within individuals, nonspecific target action, drug toxicity and development of resistance. Use of dual-drug therapies, including drug conjugates, may help overcome some of these roadblocks by more selective targeting of the cancer cell and by acting at multiple drug targets rather than one. Computer-aided drug design (CADD) comprises a broad range of theoretical and computational approaches that are part of modern drug discovery. We used molecular modeling method for finding new drug molecule for breast cancer condition. Arzoxifene is the drug molecule which introduced before against estrogen receptor alpha (ERA) for breast cancer condition. We design new analogue of Arzoxifene by replacing OH group to F, Cl, NH_2 molecules. The binding free energy of this newly formed structure is measured. HYPERCHEM and GOLD software were used for molecular designing, optimization and docking process. Arzoxifene analogue with Cl show good binding affinity as -102.07 against ERA protein. All four inhibitors with the Substituent Cl identified as the most suitable analogue in the present study and it needs to be further evaluated in laboratory.

A-99

AN EFFICIENT SYNTHESIS OF CHROMENO[3,4-B]QUINOLINE-6,11-DIONE DERIVATIVES USING LANTHANUM CHLORIDE AS A CATALYST

Sharad S. Idhole[*1] and Ajit B. Patil[2]

[1]Department of Chemistry, G.N.A. College, Barshitakali, Dist.-Akola (MS)

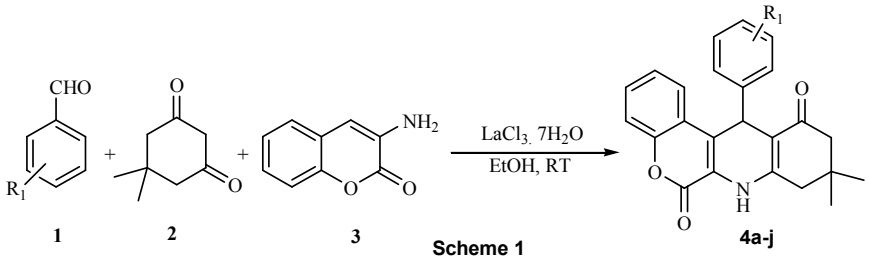
[2]Department of Biochemistry, G.N.A. College, Barshitakali, Dist.-Akola (MS)

E-mail - *shrd.idhole@gmail.com*

Among the nitrogen heterocyles quinoline and their derivatives are receiving increasing importance due to their wide range of biological activities as anti-malarial, anti-bacterial, anti-hypertensive, anti-inflammatory, anti-platelet activity and as tyro-kinase PDGF-RTK inhibiting activity. In addition, quinoline have also been employed in the study of bio-organic and bio-organometallic processes. Due to such a wide range of applicability in medicinal, industrial as well

as in the fields of synthetic organic chemistry, there has been increasing interest in the development of efficient methodologies for the synthesis of quinolines.

Therefore herein, An effective methodology was established using lanthanum chloride as catalyst to obtained chromeno[3,4-b]quinoline-6,11-dione derivatives under ambient temperature condition. The synthesis of chromeno[3,4-b]quinoline-6,11-dione derivatives has been achieved *via* one-pot reaction of 3-aminocoumarin, dimedone and aromatic aldehyde using lanthanum chloride as catalyst in solvent ethanol (Scheme1).



Scheme 1

A-100

BARIUM CHLORIDE CATALYSED SYNTHESIS OF ACRIDINE DERIVATIVES UNDER MICROWAVE HEATING

Pravin R. Kawle[1], Mahendra Dhande[2] and Rahul Gaikwad[3]

[1]Department of Chemistry, Shri R.L.T. College of Science, Akola-444001, India

[2]Department of Chemistry, H.P.T. and R.Y.K. Science College, Nashik

[3]Department of Chemistry, Vitthal Rukhmini College, Sawana

E-mail - *pravink280685@rediffmail.com*

Single step syntheses of acridine derivatives have been reported under microwave heating at room temperature. The oxidative cyclization of diphenyl amine and aromatic ketone/ aromatic acid under solvent free condition leads to formation of 9-aryl-acridine using barium chloride as a catalyst. The title compounds were characterised by IR, ^{1}H-NMR and Mass spectrometry.

A-101

LIGAND BASED DRUG DISCOVERY AND DESIGN FOR PARKINSONS DISEASE

K. Kulkarni[1], N. Neware[1], M. Reddy[2] and S. Ingle[1]

[1]P.G. Department of Bioinformatics, Shri Shivaji Science College, Amravati

[2]Aravinda Biosolutions Pvt. Ltd., Windsor Plaza, Shankermutt, Nallakunta, Hyderabad

E-mail - *bioinfo.sham@gmail.com*

Parkinson's disease is the second most common neurodegenerative disorder and the most common movement disorder in world. It leads to progressive deterioration of motor function due to loss of dopamine-producing brain cells. Drug designing, one of the hottest topics have found its new pathway to create a history in the field of medical science. The lead compound analysis starts with Computer aided drug designing (CADD), assisting to identify and to optimize the right compound. Molecular modeling method has been used for modeling a new molecule for Parkinson's using Metixene, a drug that's already designed. This work shows the interaction of Metixene analogs with Parkinson's target protein. To generated different analogs of Metixene we used HYPERCHEM software suite. Its R group is modified by replacing different functional groups like CH3, OH, OCH3, H, its place and docked by using GOLD software. All generated analogs are

optimized using different algorithms and their affinity is checked with protein. The binding free energy of the protein is calculated by performing docking process. The binding free energy of the designed molecules is obtained by eliminating the energy of the main molecule. From the obtained results it's clear that ligands OCH3 & H (-59.14 and -46.95) for Parkinson's have the maximum binding affinity. So these molecules are determined as the best lead molecules targeting computationally.

A-102

ETHNO-BOTANY OF SOME HEDGE PLANTS FROM WARDHA DISTRICT (MAHARASHTRA)

Ajay B. Jadhao[1] and Ashok Deore[2]

[1]Department of Botany, Arts and Science College, Pulgaon, District-Wardha

[2]P.G. Department of Botany, S.S.S.K.R. Innani Mahavidyalaya, Karanja (Lad), Dist.-Washim

Present article focused on some medicinally important plants which are well known as hedge category. Survey carried out particularly some villages of Wardha district, where farmers of this area used some plant for protected their crops. Article comprises mainly near about 30 plants species which used as hedge plant. Also focused their botanical name, vernacular (local) name, family and ethmomedicinal uses by local peoples. All this information is beneficial for those who were interested in further study.

A-103

REPLACING SYNTHETIC FOOD PRESERVATIVES WITH NATURAL ANTIMICROBIAL FOOD PRESERVATIVES - A FEASIBILITY STUDY FOR SMALL SCALE INDUSTRIES

Y. S. Patil and R. B. Barabde

Department of Microbiology, Shri D.M. Burungale Science and Arts College, Shegaon

E-mail - *yrbshegaon11@gmail.com*

It has been reported that the naturally occurring antimicrobial compounds could be applied as food preservatives to not only protect food quality but also extend the shelf life of foods and beverages. Since, these compounds are naturally produced and isolated from various sources, including plants, animals and microorganisms (in which they constitute part of host defence systems), they are safer. Many naturally occurring compounds, such as nisin, plant essential oils, and natamycin, have been widely studied and are reported to be effective in their potential role as antimicrobial agents against spoilage and pathogenic microorganisms. However, their utility as well as use in the food products manufactured by the small scale industries is not known. Since, this is an unorganized sector, which is not governed with stringent rules; there appears a higher risk of food borne diseases as function of consumption of these products. In view of above, a feasibility study was carried out to know the existing use of synthetic as well as natural antimicrobial preservatives by the small scale industries in the study area. The data collection was carried out by following survey methodology. Though some of these natural antimicrobials are commercially available and applied in food processing, their efficacy, consumer acceptance and regulation are not well defined with respect to the study area. The results indicate that there is very low awareness amongst the small scale industries regarding the use of natural antimicrobial preservatives.

A-104

ANTIBIOTIC SUSCEPTIBILITY PATTERN OF *E. FEACALIS* ISOLATES FROM UTI OF PREGNANT WOMEN IN AKOLA CITY

S. S. Morey, U. K. Bhalekar and Y. A. Ali
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *shubhapagrut@gmail.com*

The Urinary tract infection accounts for the majority of infection that an average women contract at least once during her life time. The risk of UTI is even greater in the pregnant women as it may lead to termination of pregnancy if not treated properly or if the drug given for treatment is harmful for the fetus. The major cause of UTI in patients is the uropathogens and *Enterococcus feacalis* is one of them causes serious infection. The significant percentage of cases i.e 33.2% were found to be affected with *Enterococcus feacalis*. The antibiotics viz. Fosfomycin, Norfloxacin, Ciprofloxacin etc. are the important drugs for the treatment of UTI. The present study has been given more emphasis on isolation of *Enterococcus feacalis* as uropathogens and its susceptibility / resistant pattern against various antibiotics.

A-105

CATHARANTHUS ROSEUS MEDICINAL PLANT STUDY TO REDUCE DIABETIC

D. B. Dupare
Department of Chemistry, Shri Dr. R.G. Rathod Arts and Science College, Murtizapur, Dist.-Akola
E-mail - *duparedharam5@gmail.com*

Today in human being struggle to diabetic, from childhood to yielder person suffer from diabetics. Cathranthus roseus L. is most important traditional medicinal plant. It is popular ornamental plant in gardens and homes in warm tropical and subtropical region. It has been used traditionally in local people for treatment of reduce diabetic. The phytochemical analysis of Cathranthus roseus L was evaluated to ascertain some of the secondary metabolites that exhibit medicinal properties. The results of phytochemical screening of ethanol crude leaves extract of Cathranthus roseus L revealed the presence of alkaloids, tannins, saponins and flavonoids. These metabolites observes by various techniques like solvent extraction ultrasonicator, rotavapour, thin layer chromatography, column separation and hptlc technique.

A-106

BIODEGRADATION OF POULTRY WASTE (CHICKEN FEATHERS) BY KERATINOLYTIC ACTIVITY OF *BACILLUS SUBTILIS*

D. R. Goyanka and U. K. Bhalekar
Department of Biochemistry, Shri R.L.T. College of Science, Akola
E-mail - *deepagoyanka@gmail.com*

Feathers are produced in large amounts as a by-product of poultry processing plant, reaching millions of tons annually. Feathers contain pure keratin protein and are insoluble and hard to degrade due to highly rigid structure rendered by extensive disulphide bond and cross linking. Alternatively, keratin can be biodegraded by some keratinolytic bacteria. For the present work, poultry waste products (chicken feathers) were collected from the nearby locality. The aim of this study was to degrade the chicken feathers by keratinolytic activity of *Bacillus subtilis*, to

determine keratinase activity, and to characterize crude enzyme. Pure culture of *Bacillus subtilis* obtained from Dr. Panjabrao Deshmukh Krushi Vidyapeeth, Akola. Soluble keratin was synthesized from white chicken feathers. For the degradation of feathers, Feather meal media and Horikoshi media were inoculated with *Bacillus subtilis* and feathers were added to it. Both the media were kept on rotary shaker at 160 rpm for 7 days. Controls were prepared similarly. The keratinolytic activity was assayed by taking crude enzyme with keratin solution. Optimum temperature and pH for the enzyme activity were found to be 60°C and 7 respectively. Among the various metal ions tested, zinc and magnesium ions were found to enhance enzyme activity, whereas EDTA and copper ions inhibit the enzyme activity. It was found from this study that organisms such as *Bacillus subtilis* can be use as potential candidates for the degradation of feathers and for dehairing in leather industries.

A-107

DIVERSITY AND DISTRIBUTION OF TICK SPECIES INFESTING LIVESTOCK (CATTLES) WITH TWO NEW HOST RECORDS FROM AKOLA DISTRICT, MAHARASHTRA

Pooja S. Thakur and I. A. Raja
Yeshwant Mahavidyalaya, Nanded
E-mail - *poojaguhilot303@gmail.com*

Indian faunal diversity included an extremely abundant group of animal, the ticks. They are highly specialized obligate haematophagous ectoparasites. We surveyed diversity of hard tick species (Acari: Ixodidae) from june 2014 to may 2016. The ticks were observed from different localities in all talukas of the district of Akola. A total of 510 (142cattle, 90 buffaloes, sheep 106 and 172goats) livestock animals were observed to study diversity in ticks. Thus majority of the adult ticks were females (App 80%) and these were the ones used for identification. We found 4 genera hard ticks including Hyalomma, Rhipicephalus, Dermacentar and Haemaphysalis with sub genus Boophilus micropilus on livestock of Akola district. Hylomma anatolicum anatolicum, Hy. marginatum issaaci, Hy. hussaini, Rhipicephalus Boophilus microplus, R. sanguineus, Haemaphysalis bispinosa, Rhipicephalus Haemaphysaloid, Rhipicephalus ramchandrai. Of the eight tick species found, the two species, *Ripicephalus annulatus* and *Dermacentor spp.* were new host records from Akola (MH) were the ticks found. The talukas dominated by reserved forest areas like Akot, Telhara, Patur, Barshi-Takli reported to have two genera, R. Boophilus and Hyalomma in abundant in the study area.

A-108

COMPARATIVE ANATOMY OF STEM AND LEAF OF *BARLERIA* L.

Smita K. Lande
Department of Botany, Late Pundalikrao Gawali Arts and Science Mahavidyalaya, Shirpur (Jain), Dist.-Washim
E-mail - *landesmita2011@gmail.com*

Acanthaceae is one of the largest families of Angiosperms comprising of 250 genera and 2500 species and distributed throughout the world. *Barleria* is one of the large genuses of the family. The present study deals with the comparative anatomy of stem and leaf of *Barleria* species growing in Malegaon region. In addition, stomatal index, stomatal frequency, leaf constants were

studied. The presence or absence of trichomes and cystoliths, types of cystoliths were found to be important characters for the identification of *Barleria* species.

A-109

HAEMATOLOGICAL STUDIES OF SILKWORM, *BOMBYX MORI L*. DURING GRASSERIE DISEASE

Shubham R. Rathod and P. P. Ade
Department of Zoology, Shri Shivaji College of Arts, Commerce and science, Akola

Sericulture depends on rearing of silkworm *Bombyx mori L.* on mulberry leaves. The silkworm, *Bombyx mori L*. is a delicate and sensitive lepidopteron insect, which has been domesticated for silk production. Due to continuous domestication, silkworm becomes susceptible to various diseases. The present study is aiming to find out effect of Grasserie disease on the haemocyte number of fifth instar larva of *Bombyx Mori L*. Haemolymph was collected from fifth instar larva. Haemocytes are found circulating freely in the haemolymph or adhering to internal organs such as the fat body or the digestive tract of the insects. Five types of haemocytes were found in the haemolymph of *Bombyx mori L.* viz., prohaemocytes (PRs), plasmatocytes (PLs), granulocytes (GRs), spherulocytes (SPs) and oenocytes (ONs). The sample collected was performed for Total haemocyte count which gave idea about changes in number of haemocytes before and after infection. The result shows that there were no significant changes in THC during early infection however reduction in THC was seen during late infection. Alteration in studied parameter suggests that these parameters could be used as indicator of the health statue of silkworm *Bombyx mori L*. as well as can be taken as target system to measure physiological and biomolecular stress induced alterations in the body during the occurrence of disease.

A-110

PODAXIS PISTILLARIS (L.ex Pers.) Fr (DESERT SHAGGY MUSHROOM): A POTENTIAL GASTROID MUSHROOM FROM AMRAVATI REGION

G. B. Hedawoo
P.G. Department of Botany, Shri Shivaji Science College, Amravati (MS), India
E-mail - *drgbhedawoo@gmail.com*

Many periodical surveys were conducted of Amravati region in Maharashtra for mycoflorestic studies during monsoon season. A rich diversity of wild macromycetes was encountered that includes edible, non-edible and medicinal mushrooms. Identification, edibility and medicinal potential of collected mushrooms were noted by referring to standard literature.

During survey, *Podaxis pistillaris* (Desert Shaggy Mane)- a gastroid mushroom within the family Agaricaceae (Sub.div.- Basidiomycotina) is collected from many sandy habitats from Amravati-Melghat region. Locally it is known as 'Khumbi'.Commonly known as Desert Shaggy Mane due to its resemblance to *Coprinus comatus*.

The sporophores have been used as food in many countries. Its nutraceutical value is so high. It contains proteins, amino acids, carbohydrates and low fats. Presence of secondary metabolites such as phenols, flavonoids, steroids, β-carotene and lycopene make it an important antioxidant source. It has been employed for the treatment of skin diseases, for wound-healing, anti-bacterial, against sunburn and inflammation as an efficient sunscreen. In different countries this mushrooms is used as an edible (nutraceutical) medicinal, cosmoceutic resource and has potential use as a probiotic.

A-111

MUNICIPAL SOLID WASTE MANAGEMENT

N. K. Agrawal, V. S. Ingle and R. M. Yaul
B.S. Patel Arts, Commerce and Science College, Pimpalgaon Kale
E-mail - *ivaishali516@gmail.com, Rajaniyeul01@rediimail.com*

In the presence study the 'Municipal solid waste' is used for the study. Because throughout the world there is 2.12lakh million tone per day of the waste and in developing country it is 6.3 million tone, in state 413.558 tone and in village 27.8 tone is discarded. In urban India 62 million tones of waste is generated. Out of them only 14-20% is treated and remaining were dump in the ground, Which results in to the disturbing the ecosystem which directly affect on Humanity. In presence study the separation of waste material and systematic converting with the help of microorganism is carried out.

A-112

ETHANOBOTANICAL SURVEY OF TRIBAL PEOPLE IN BHINGARA VILLAGE TAHSIL JALGAON (JAMOD) DISTRICT BULDANA

S. B. Gedam and A. M. Katgaye
Shri Pundlik Maharaj Mahavidylaya, Nandura, Dist.-Buldana (MS)
E-mail - *gedamsb30@gmail.com, anitabuddhe@gmail.com*

Ethnobotanical knowledge exists in India from ancient time. India is a vast country with a variety of topographies, climates, vegetation and peoples. When discussing ethno botany in India, we can consider two groups of people, those living in small cities or rural villages and tribal peoples who live in remote villages. Bhingara is a medium size village located in Jalgaon (Jamod) Taluka of Buldana district, Maharashtra. The Bhingara village has population of 1780 of which 883 are males while 897 are females as per Population Census 2011. They spoke Nimadi language. There houses are made from soil, clay, sand and rocks. They decorate their houses by Bambu sticks. There is no electric facility. Government has provided solar system. Bhingra village is famous for historic place. Tribal peoples were used local plants as a medicine. Total 30 plants were collected from Bhingara village viz. *Ocimum sanctum* L., *Ocimum basilicum* L., *Tridax procumbens* L., *Phyllanthus niruri* L., *Xanthium strumarium* L., *Solanum nigrum* L., *Madhuca longifolia* J.F. Macbr., *Tectona grandis* L., *Achyranthus aspera* L. *Tamarandis indica* L., *Acacia nilotica*, *Euphorbia hirta* Millsp., *Ricinus cummunis* L., *Carica papaya* L., *Cucurbita pepo* L., *Woodfordia fruticosa*., *Allium cepa* L., *Syzigium cumini* L., *Embelica officinalis* Gaertn., *Punica granatum* L., *Sesamum indicum* L. *Sapindus emarginatus* L., *Zingiber officinale* Roscoe., *Aegel marmelos* Corr., *Feronea elephantum* Correa., *Nicotiana tabacum* L., *Plumbagao zeylanica* L., *Moringa olifera* Lam., *Sida cordifolia* L., *Portulaca oleracea* L. The study area possesses traditional medicinal plants to treat various humans' diseases, fodder for animals and agricultural uses. It is responsibility of all villagers as well as government to preserve biodiversity of Bhingara village.

A-113

GREEN SYNTHESIS AND EVALUATION OF BIOLOGICAL ACTIVITY OF 2-(2-CYANO-1-PHENYL-1H-BENZO[F]CHROMEN-3-YL)-5-(METHYLTHIO)-3-OXO-2,3-DIHYDRO-1H-PYRAZOLE-4-CARBONITRILE

S. G. Badne, G. W. Belsare and G. V. Korpe
P.G. Department of Chemistry, Shri Shivaji College of Arts, Commerce and Science, Akola

Reasonable working definition of Green Chemistry can be formulated as follows chemistry efficiently utilizes raw materials eliminate waste and avoid the use of toxic reagent and solvents in the manufacture and application of products.

One of the main objectives of organic and medicinal chemistry is the design and synthesis of molecules having as much value as human therapeutic agents. The benzochromene nucleus has been emerged as a promising and attractive scaffold in the development of potent antitumor agents and the treatment of human diseases. In our synthesis of parent compound 2-(2-cyano-1-phenyl-1H-benzo[f]chromen-3-yl)-5-(methylthio)-3-oxo-2,3-dihydro-1H-pyrazole-4-carbonitrile. 3-hydrazinyl-1-phenyl-4a,10b-dihydro-1(H)-benzo[f]chromene-2-carbonitrile with ethyl 2-cyano-3,3-bis(methylthio) acrylate using pinch Potassium Carbonate as a catalyst and N,N-Dimethyl Formamide as solvent reflux it for 04 hours at maintained temperature 70^{o}C.

A-114

ANTIBACTERIAL ACTIVITY OF CITRUS FRUIT PEELS AGAINST PYOGENIC *STAPHYLOCOCCI*

Saurav M. Dhote[*] and Jayshree R. Netkar[*]
P.G. Department of Microbiology, Adarsha Mahavidyalaya, Dhamangaon Rly.

Generally fruit peels are thrown in garbage which rich in many bioactive components. The present study was carried out to evaluate the antibacterial activities of citrus fruits peels. *Staphylococcus aureus* is pyogenic microorganism causing 50,000 deaths per year. *Staphylococcus aureus* cause treated very well by antibiotics. Now a day's antibiotics resistance has been increased among these organisms. Therefore citrus fruit peel may be alternative method for the treatment of such infection and so present study was carried out to develop alternative treatment method for such organism.

A-115

SYNTHESIS, CHARACTERIZATION AND IN VITRO ANTIMICROBIAL ACTIVITY OF TRANSITION METAL COMPLEXES OF [1-(2-HYDROXY-5-METHYL-3-NITRO PHENYL) ETHANONE-4-CHLORO-(3-TRIFLURO METHYL) ANILINE] SCHIFF BASE

Jaishri Bavane[*] and Rahul Mohod
P.G. Department of Chemistry, Shri Shivaji College of Arts, Commerce and Science, Akola-444001 (MS), India
E-mail - *jaishrisonawne@gmail.com*

Transition metals Mn(II), Co(II), Ni(II), Cu(II), Zn(II) and Cd(II) ions complexes with novel Schiff base , resulted from the condensation of [1-(2-hydroxy-5-methyl-3-nitro phenyl) ethanone with 4-chloro (-3-trifluro methyl) aniline] as a Schiff base have been synthesized and characterized using elemental analysis, spectra (FT-IR,1H NMR), magnetic moment and thermal studies. The IR data suggest that coordination mode for Schiff base ligand which behaves

octahedral with metal ion. The Schiff base and the complexes have been screened for their antimicrobial activity against bacteria *Escherichia coli, Staphylococcus aureus, pseudomonas aeruginos in* Mullar-Hilton medium and *Aspergillus niger* and fingi *Trichoderma viride* in potato dextrose agar medium. Their study shows that the Schiff base complexes show more antibacterial activity as compared to ligand.

A-116

EFFECT OF ZINC TOXICITY ON SOME HAEMATOLOGICAL PARAMETERS OF FISH, *OPHIOCEPHALUS PUNCTATUS*

A. S. Sawarkar
Department of Zoology, Shri R.L.T. College of Science, Akola-444001
E-mail - *assawarkar@yahoo.com*

The present study aimed to evaluate some haematological changes resulting from the exposure of the freshwater fish, *Ophiocephalus punctatus* to the sublethal concentration of 6 mg/l of zinc sulphate in water for a period of 7, 14, 21 and 28 days. The studied haematological parameters were haemoglobin content, haematocrit percentage, erythrocyte count, total leucocyte count, and mean corpuscular haemoglobin. Zinc sulphate caused reduction in haemoglobin content and increase in haematocrit values. Tremendous increase in erythrocyte count after 7 days zinc sulphate treatment was recorded in the experimental fish but later on there was significant decrease in the erythrocytes count after 28 days. Rise in leucocyte count was observed after 7 days zinc sulphate treatment but later on the number decrease. Fish also showed significant drop in mean corpuscular haemoglobin after 7 and 14 days, followed by slight increase. These haematological parameters may be used as an indicator of stress in fish induced by zinc toxicity.

A-117

EFFECT OF FOLIC ACID ANTAGONIST METHOTREXATE (MTX) ON TESTIS OF *FUNAMBULUS PENNANTI* (WROUGHTON)

S. R. Kohchale
Department of Zoology, Shri R.L.T. College of Science, Akola, Maharashtra, India
E-mail - *dr.sudhirkohchale@gmail.com*

Methotrexate (MTX) is an effective agent in treatment of cancer, is one of the most versatile antineoplastic agents in spite of severe toxicity problems. The toxic effect of the Methotrexate on testis have been studied by intramuscularly injection of low dose of 3 mg/kg BW/per day and 6 mg/kg BW/day for 15 days to adult male squirrel *(Funambulus pennanti)* during breeding period. For comparing the effects the saline treated vehicle was injected same amount of saline and was maintained for the same duration. Toxic effect of MTX on the testis was their smallness in size sometimes irregularity in general contour, noticeable thickness of tunica albuginea, irregular appearance of spermatic arteries supplying blood to testis, in both the doses. Since MTX crosses the blood testis barrier, it induces significant reduction in the size of the tubules. From the foregoing it is concluded that Methotrexate has antigonadotrophic, antiandrogenic and antispermatogenic properties which are dose and duration dependent besides being toxic, therefore certainly causing reduction in the fertility rate.

25 Pus samples were collected and identified by microbiological method. Later, fruit peel extract applied on such isolated cultures of *staphylococcus aureus*. Antibacterial activity of extract was isolated against these isolated organisms. Citrus fruit peels extract exhibited significant antibacterial activity against pyogenic *staphylococcus aureus* isolated from pus sample. Peels extract treatment act as better alternative to routine antibiotics.

A-118

COMPARATIVE MICROBIOLOGICAL ANALYSIS OF LIVESTOCK FEEDS AND ITS EQUIVALENT HERBAL PREPARATION

Ankita R. Tathod[*] and Shubham R. Ninghot[*]
P.G. Department of Microbiology, Adarsha Mahavidyalaya, Dhamangaon Rly.

Livestock feeds viz. cottonseeds cake, grass, cottonseeds, crop straw, maize powder etc. are employed as a richest food for domestic animals like, cattle, sheep, buffalo, cow, etc. present was carried out to evaluated presence of bacteria in livestock feeds and suggest herbal preparation for domestic animals. Different livestock feeds sample such as grass, cottonseeds cake, cottonseeds, crop straw, maize powder were collected and aqueous extract were prepared. Finally, to our surprise *E. coli*, *S. aureus* and *B. subtilis* were such found to be present different livestock feeds, this isolated and identified standard microbiological method.

We proceed to herbal preparation of wheat straw, pigeon pea leaf, groundnut waste millet straw, sorghum straw. These herbal preparations were tested for presence of bacteria like livestock feeds. No bacteria were found to be present in sterilized herbal preparation therefore from above studies it may be concluded herbal preparation may be the richest animal feeds showing no presence of bacteria.

A-119

ANTIMICROBIAL ACTIVITY OF FLOWERS AGAINST THE MICROORGANISMS ISOLATED FROM NASAL SECRETION

Pooja S. Mandokar[*] and Kartik S. Gayke[*]
P.G. Department of Microbiology, Adarsha Mahavidyalaya, Dhamangaon Rly.

Pathogenic organisms like S. *aureus* and S *pyogenes* present in nasal secretion of persons of different age groups, causes serious infections like sinusitis etc. nowadays antibiotics is observed among these organisms. Therefore, nasal study was carried out is tested antibacterial activity of flowers extract against these organisms.

30 Nasal secretion samples were collected form persons including children from different age groups of different areas. Antibacterial activity of different flowers (Hibiscus rosasinesis Linn, Plumeria rubra, passiflora, nyctanthas arbor tristis) extracts were tested against isolated and identified S. *pyogenes* and S. *aureus* by agar well diffusion method. These extracts exhibited remarkable antibacterial activity against S. *aureus* and S. *pyogenes* pathogenic and pyogenic organisms isolated from nasal secretions of different age groups. Among these extracts, extracts of N. arbor tristis was found to be more inhibitory against these isolated S. *aureus* and S. *pyogenes* as compare to others. Alternatively these flowers extracts may be richest antibiotics like substance in future against these organisms. These organisms are developing antibiotics resistance.

A-120

ANTIBACTERIAL ACTIVITY OF INDIAN SPICE (*CINNAMOMUM ZEYLANICUM*) ON TOOTH DECAYING BACTERIA *STREPTOCOCCUS MUTANS*

Yuvraj H. Soni* and Akshay D. Itiwale*
P.G. Department of Microbiology, Adarsha Mahavidyalaya, Dhamangaon Rly.

Streptococcus mutans is a pathogenic bacterium which causes tooth decay known as dental caries in humans. The present study was carried out to test antibacterial activity of spice (cinnamon) against *S. mutans* responsible for tooth decay in humans. In present study 30 cotton swab samples were collected from patients suffering from dental caries. Isolates of *S. mutans* were obtained and identified by standard microbiological methods.

Later the ethanolic extract was prepared from bark of the cinnamon which was tested against these isolate of *S. mutans* by agar well diffusion method. Ethanolic extract of spice cinnamon exihibits significant antibacterial activity against pathogenic isolates of *S. mutans.* In future, such type of extract preparation may be alternative method to treat patients of tooth caries produced by *S. mutans*.

A-121

STUDY OF MORPHOLOGY AND PHYTOCHEMICAL SCREENING OF *IPOMOEA CARNEA* JACQ. OF CONVOLVULACEAE GROWING IN WEST-VIDARBHA

Vaishali N. Badgujar[1] and S. P. Rothe[2]
[1]Department of Botany, Shri R.L.T. College of Science, Akola
[2]Department of Botany, Shri Shivaji Arts, Commerce and Science College, Akola
E-mail - *vaishalibadgujar73@gmail.com*

In West-Vidarbha*, Ipomoea carnea* is a well known alien invasive species belonging to Convolvulaceae or bindweed family. It has a unique potential to servive in terrestrial as well as aquatic habitat. It has rich floristic diversity. The plant is harvested from the wild for the local use and possesses medicinal values due to presence of phytochemicals. Phytochemicals are non-nuritive plant chemicals that have protective or disease preventive properties. From latex of *I. carnea* was found a new chinase, a digestive enzyme that break down glycoside bonds in chitin.

A-122

QUANTIFICATION OF UREA AND URIC ACID IN SILKWORM BOMBYX MORI DURING GRASSERIE INFECTION

Rashmi P. Joshi[1] and I. A. Raja[2]
[1]Department of Zoology, Shri R.L.T. College of Science, Akola
[2]B.S. Patel Arts, Commerce and Science College, Pimplegaon Kale

Grasserie is one of the most serious diseases of silkworms, though occurs throughout the year, its intensity varied with seasons. The pathogenic infections induce biochemical alterations including nitrogenous waste like, Urea and Uric acid in larval tissues. Here we estimated urea and uric acid in non-infected, healthy silkworms and the silkworm infected with Grasserie. At early infection with Grasserie the amount of urea in silkworm midgut tissues was recorded as 6.38 mg % as compared to control healthy 7.34 mg%. While in late infection the amount of urea was 6.78 mg% as compared to non infected control 7.54 mg %.Uric acid in Midgut tissue of silkworm

infected with Grasserie in early infection showed non-significant changes, (1.94 mg%) as compared to healthy control was (2.72 mg %). While in late Grasserie infection the amount of uric acids was 1.33mg% and was significant as compared to healthy control in late infection as 2.22mg %. The investigation of chemical changes in body tissues is an appropriate system for studying effects of pathogenic disease. The understanding and identifying these tissue biochemical changes will be very important for discussing many biological stresses. The biochemical responses in silkworm against pathogenic diseases could facilitate the control of agricultural pests.

A-123

ONE POT SYNTHESIS OF DERIVATIVES OF 2-AMINO-CHROMENES BY USING L-PROLINE AS A REUSABLE CATALYST

Mahesh A. Pawar and S. S. Kadu
Department of Chemistry, Shri Shivaji College of Arts, Commerce and Science, Akola
E-mail - *mahesh311286@gmali.com*

Derivatives of chromene are an important group of compound found in plants including fruit and vegetables. Chromene are biologically active with wide range of activities such as antimicrobial, mutaginicitical, antviral, antiproliferative and central nervous system activities. In current research work substituted 2-amino 4H-chromenes were synthesized by one pot synthesis method by interaction with substituted benzaldehyde, β-naphthol and mlononitrile by using L-proline as reusable catalyst. The yield of product is found to be very good. The synthesized compounds were recognized by IR, NMR and mass spectroscopic technique.

A-124

SYNTHESIS AND PHOTOLUMINESCENCE INVESTIGATIONS ON Sm^{3+} IONS DOPED SODIUM ALUMINO-BORATE PHOSPHOR

R. S. Palaspagar[1] S. R. Khandekar[2], Y. P. Manwar[3], R. P. Sonekar[4] and S. K. Omanwar[5]
[1]Department of Physics, Shivramji Moghe Mahavidyalaya, Kelapur (Pkd)-445001, Dist.-Yavatmal (MS), India
[2]Department of Chemistry, Indira Mahavidyalaya, Kalamb-445401, Dist.-Yavatmal (MS), India
[3]Department of Physics, Shri R.L.T. College of Science, Akola-444001 (MS), India
[4]Department of Physics, G.S. College, Khamgaon, Dist.-Buldhana (MS), India
[5]Department of Physics, S.G.B. Amravati University, Amravati-444602 (MS), India
E-mail - *rspalaspagar@gmail.com*

In the present work we describes mainly the optical absorption, photoluminescence (PL) characteristics of Sm^{3+} ions doped sodium alumino-borate phosphors (NABO). The fine polycrystalline powder samples of NABO:Sm^{3+} has been prepared by a solution combustion technique. Powder X-ray diffraction and scanning electron microscopy studies were used to characterize the prepared combustion powder. Photoluminescence spectra revealed that samarium ions are present in trivalent oxidation states. The PL excitation spectra of NABO:Sm^{3+} consists of several bands peaking at 305 nm, 330 nm, 344 nm, 361 nm, 374 nm, 403 nm, 462 nm and 473 nm. The excitation spectrum monitored at 403 nm emission consists of green emission band peaking at 565 nm, orange emission band peaking at 603 nm and red emission band peaking at 651 nm. Since the prominent excitation peaks are above 350 nm, the phosphor may useful for solid state lighting application.

A-125

PRODUCTION OF BIOETHENOL FROM WATER HYACINTH

A. G. Thakare and D. L. Barate
Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola
E-mail - *aniketthakare30@gmail.com*

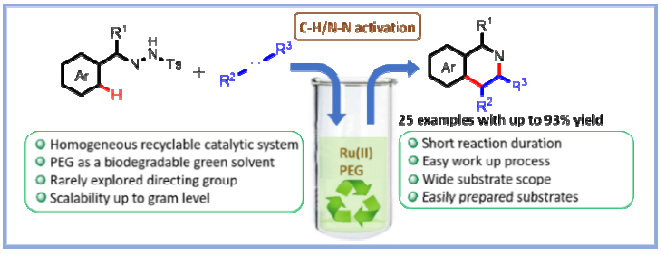
Water hyacinth is a monocotyledonous freshwater plant, related to the lily family. Water hyacinth is introduced as an ornamental crop species in many countries. This should be based on concept of renewability and ecosystem surplus, and could help in neutralization of global industrial carbon impact. Utilization of these weed for energy production seems to be highly beneficial, because the water hyacinth is a largly available in rivers. Average biomass composition of water hyacinth is as Lignin- 10%, Cellulose- 25%, Hemicellulose- 35%, Ash- 20%, and Nitrogen- 03%. In the study Water hyacinth was collected from Morna river of Akola city. The plants were thoroughly washed with water and cutted into pieces. The material was sun-dried and with grinder fine powder was prepared. The powder was pretreated with acid/ alkali. The fermentation medium was incubated with consortium of cellulose producers for 5 days followed by addition of *S. cerevacae* for 7 days. The result showed the potential of water hyacinth as feedstock for ethanol production.

A-126

A GREEN SYNTHESIS OF ISOQUINOLINES AND ISOQUINOLINONES *VIA*C-H BOND ACTIVATION REACTIONS

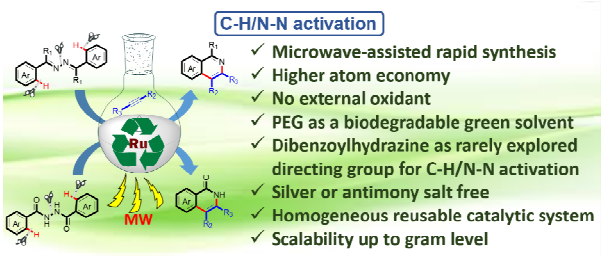
Dewal S. Deshmukh[1] and Bhalchandra M. Bhanage[2]
[1]Department of Chemistry, Shri Shivaji College of Arts, Commerce and Science, Akola, India
[2]Department of Chemistry, Institute of Chemical Technology (ICT), Mumbai, India
E-mail - *dewalsdeshmukh@rediffmail.com, bm.bhanage@gmail.com, bm.bhanage@ictmumbai.edu.in*

Herein, a green and sustainable methodologies for the synthesis of isoquinolines using Ru(II)/PEG-400 as a homogeneous recyclable catalytic system has been demonstrated. *N*-tosylhydrazone, a rarely explored directing group has been successfully employed for the annulation type of reaction with alkynes via C-H/N-N activation. Short reaction time with a simple extraction procedure, wide substrate scope with high yields of products, easily prepared substrates, biodegradable solvent and scalability up to the gram level enhances the efficiency and sustainability of the proposed protocol. Further, the expensive ruthenium based homogeneous catalytic system could be reused up to a fourth consecutive cycle without any loss in its activity.



In other work, we report an atom-efficient, rapid, green, and sustainable approach to synthesize isoquinolines and isoquinolinones using a homogeneous recyclable ruthenium catalyst in PEG Media assisted by microwave energy. Dibenzoyl hydrazine was used for C–H/N–N activation reactions for the first time in combination with ketazine as oxidizing directing groups for annulation reactions with internal alkynes. The developed protocol is environmentally benign

due to significantly shortened times with an easy extraction method, higher atom economy, external oxidant and silver or antimony salt free conditions, applicability to a gram scale synthesis, use of biodegradable solvent and wide substrate scope with higher product yields. Moreover, it is worth noting that the established methodology allowed reuse of the catalytic system for up to five successive runs with minimal loss in activity.



A-127

ANTIFUNGAL ACTIVITY OF PIPER BETLE LEAF EXTRACT

A. D. Wahurwagh, A. S. Pethe and S. S. Apotikar
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola-444001
E-mail - *wahurwagh2016@gmail.com, archanapethe14@gmail.com, shubhangiapotikar7@gmail.com*

Piper betle (Linn) a common plant are reported to exert antifungal activity against various fungi strains in Potato dextrose agar medium. Piper betle (Linn) commonly called as betel leaf is a widely cultivated plant in India. The betle leaf is familiar as Paan in India Research on piper betle showed as vast number of pharmacological benefits such as antioxidants, antimicrobial, and antinflammatory properties. They have documented the antifungal effect of the leaf extract on yeast, molds, for 70% ethanolic extract of betel leaf is likely the major active compounds that are at least partly responsible for antifungal activity in betel leaf extract. The present study the antifungal activity of piper betel leaf by well- diffusion method was observed against Aspergillus, Mucor, Penicillin etc.

A-128

TO STUDY THE GERMINATION PERCENTAGE AND GERMINATION RATE OF WHEAT BY APPLICATION OF BIOSYNTHESIZED FeNPS

Bhakti Sonone and Archana S. Pethe
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola
E-mail - *bhaktisonone1997@gamil.com, archanpethe14@gmail.com*

Nanotechnology is the emerging branch of science which includes the particles having size less than 100nm. Nanoparticles have various applications in various fields like medical, Agriculture, Space and various other industries. In the present study we worked on the effect of FeNPs (Iron Nanoparticles) on the germination percentage and germination rate of wheat. For the synthesis of FeNPs, the *Bacillus* sp. was used. 1mM solution of $FeSO_4$ (Ferrous sulphate)was inoculated with equal volume of 24hr old supernatant of *Bacillus* sp. and incubated in rotary shaker in dark condition at 37^0C for 48hrs. The synthesis of FeNPs was checked by observing the change in the colour of the solution which turned from yellow to dark brown. The FeNPs was characterized by using UV-visible spectroscopy and FTIR analysis. The effect of FeNPs was studied on wheat seeds by soaking the seeds in various concentrations of FeNPs and the $FeSO_4$solution was taken as control. It was observed that upto certain concentration the germination percentage

and germination rate increases. There was development of more number of seminal roots in the wheat seeds treated with FeNPs than in $FeSO_4$ solution. The FeNPs also showed inhibitory effect above certain concentration. The attentive use of FeNPs increases the germination percentage and finally crop yield also.

A-129

BACTERIOLOGICAL STUDIES ON MEAT AND MEAT PRODUCT

C. S. Sawarkar and M. T. Rokade
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola-444001
E-mail - *chhayasawarkar2204@gmail.com*

In India goat meat and chicken represents important food stuffs in nutrition of people, thus microbial safety of meat cuts is highly essential. Bacteria can find their way into meat of healthy goat and poultry birds. Due to its composition meat acts as a perfect ground for the growth and development of bacteria causing different diseases in consumers i.e. humans. For the given topic, 10 samples of 6 different parts of goat meat and chicken were collected from open market to determine their microbial flora. Different contamination sources were identified and some remains unidentified. A list of main pathogenic bacteria of concern for the consumer is established. The species found were namely *Salmonella Sp, Streptococcus Sp, Shigella Sp, Strephylococcus Sp, Escherichia coli and S.aureus.* It may suggest that meat sector tends to provide ready to eat products which are safe for the consumers.

A-130

ANTILARVAL ACTIVITY OF *PSEUDOMONAS SPECIES* ISOLATED FROM RHIZOSPHERE

D. P. Dhanbhar and D. L. Barate
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola-444001
E-mail - *daminid629@gmail.com*

Diseases such as dengue and chikunguniya have been increasing rapidly. The vectors of these diseases are mainly mosquitoes. The control method of these mosquitoes has been done with the help of chemical pesticides which are harmful for both human and environment. However biological control through the use of bacteria is the best alternative for chemical pesticides.In this view *Pseudomonas species* were isolated from rhizospheric soil collected from various places of Akola City using *Pseudomonas* isolation agar and centrimide agar. The identification of isolates was done by standard conventional methods. The antilarval activities of isolates were checked by cup assay method. The results showed there has been prominent antilarval activity of isolate P1 which was found after 8 hrs followed by P3 and P5which showed activity after 10 hrs and followed by P7 which showed after 12 hrs.

A-131

SCREEENING AND ISOLATION OF MELANIN PRODUCING ACTINOMYCETES FROM SOIL SAMPLE

D. B. Ramchaware and S. N. Zodpe
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola
E-mail - *dbram0218@gmail.com*

Actinomycetes species is capable of producing melanin pigment isolated from various soil sample. Fifteen different localities of Akola and were screened for melanin pigment production isolate A4 found to be higher melanin producer. It produces melanin at pH range between 7 to 8.2 and temperature range between 30^0C to 37^0C, which is favourable for melanin production. Melanin was successfully extracted in a crude form and used for the antimicrobial activity against selected microorganism.

A-132

PRODUCTION OF BIOFUEL FROM WASTE NEWSPAPER BY MICROBIAL FERMENTATION

D. R. Bhagwatkar and A. S. Pethe
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola-444001
E-mail - *dnyanu022@gmail.com, archanapethe14@gmail.com*

A biofuel is a fuel that is derived from biological materials. The paper industry produced about 300-500 million tons of various types of paper and board. Smaller part of waste paper materials recycled while most of the used material is thrown out and burned. The microorganisms has the ability to produce biofuel with provided period of 72 hours, temperature at 35-3°C, pH 6, nitrogen source. The basic steps for large production of ethanol are microbial fermentation of sugar, distillation, dehydration and denaturing. Yeast *saccharomyces cerevisiae* showed excellent co-fermentation of sugar in hydrolysate of waste papers. High amount of alcohol was produce from newspaper as a biofuel.

A-133

MICROBIAL DEGRADATION OF LOW DENSITY POLYETHYLENE BY *PSEUDOMONAS AERUGINOSA*

Kalyani P. Patinge and S. N. Zodpe
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola-444001
E-mail - *Kalyanipatinge2@gmail.com*

Plastics have been widely use as a packing material in the form of low density polyethylene. Continuous accumulation of plastic in the environment can cause threat to humidity and environment. In order to stop the accumulation of plastic and to make the surroundings free from plastic, microbes were isolated from medicinal soil, garden soil, sewage water soil, Agricultural Soil. These microbes are screened by clear zone technique using polyethylene glycol to confirm the degradation activity. To check the efficiency of biodegradation weight method was performed under laboratory condition for 1 month, Experimental date revealed that *Pseudomonas species* have highest plastic degradation capacity and it degrade up to 30% least activity of degradation was shown by *S. aureus* and *E. coli*.

A-134

BIOFILM SUPERESSION OF PATHOGENIC BACTERIA BY PLANT EXTRACT OF AZADIRACHTA INDICA La.

K. S. Ghanmode and S. N. Zodpe
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola-444001
E-mail - *kanchanghanmode0@gmail.com*

A biofilm comprise any syntrophic consortium of microorganisms in which cell strick to each other and also to a surface. Total 27 bloods and urine sample infected person were collected. A total of 17 isolate i.e. Gm +ve and -ve were isolated, but Gm+ve organism were predominately observed. Tube method and congo red method were studied for the confirmation of biofilm producers. In this study we demonstrate the efficiency aqueous extract of Azdirachta indica studying for antibiofilm activity against *E. Facecalis* of *S. aureus*, *E. coli*, *S. typhi.* These result as per the result were noticed it clearly demonstrate the antibiofilm activity of plant extract against pathogens.

A-135

METAL NANOPRIMING TECHNOLOGY TO CONTROL PATHOGENIC FUNGI OF COTTON PLANTS

R. V. Darade and A. S. Pethe
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola-444001 (MS), India
E-mail - *rvdarade93@gmail.com, archanapethe14@gmail.com*

Due to unique physiochemical properties of Nanoparticles (NPs) used in the various field of science like pharmacology, agriculture, biotechnology, physics and chemistry. Application of biologically synthesized NPs in the field of agriculture for sustainable development. Metal NPs have ability to inhibit the fungal growth. In present study Cu and Fe metal NPs synthesized by using microorganisms from their bulkcounter parts of metal. Plant pathogenic fungi from infected part of cotton plant were isolated. In present investigation Cu and Fe nanopesticide found to be effective against pathogenic fungi like *Fusarium oxysporum, Alternaria macrospora, Curvularia spicifera, Rhizoctonia solani* and *Aspergillus flavus*.

A-136

TO COMPARE DIFFERENT TOOTHPASTE FOR THEIR ANTIMICROBIAL EFFICACY

Kiran D. Wakode and Sunayana V. Narwade
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola
E-mail - *kirandwakode12@gmail.com*

This study was therefore designed to evaluate the invitro antimicrobial activity of commercially available toothpaste against some microorganism, involved in tooth infection. Agar disc diffusion method was used to test the antimicrobial activity of five different tooth paste at various concentrations (1:2, 1:4, 1:8 dilutions) against Escherichia coli, Staphylococcus aureus and Candida albicans. The sensitivity of tested toothpastes towards each microorganism was expressed as a percentage of the mean clear zone diameter. Stastistical analysis was performed

with the help of Statistical Packages for Social Science (SPSS) version 19 with significance considered at $p<0.05$ using Student Newman Keuls.Test concentration of 1:2 dilution of these toothpaste was most effective on E.coli with clear zones ranging from 11.7 mm to 23.3 mm. Generally the inhibition of S. aureus growth by these dentrifrices even at higher test concentration was weak, with clear zones ranging from 8.3 to 15.0 mm. No growth inhibitory activity was observed for mericle (least effective in bacterial growth inhibition) against C. albicans at all the tested concentration. Results from our study have shown that toothpaste formulation containing natural antimicrobial agents were more effective in controlling the oral microflora compared to toothpaste containing synthetic antimicrobial agents.

A-137

ANTIMICROBIAL EFFECT OF EAR DROPS ON MICROFLORA OF OTITIS EXTERNA AND THEIR ANTIBIOGRAM

P. P. Mankar and A. S. Pethe
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola
E-mail - *mankar.pooja22@gmail.com, archanapethe14@gmail.com*

Otitis Externa is the inflammation of the external auditory canal including ear pinna and ear canal extended to ear drum. In the present study the infectious ear samples were collected from the otitis externa patients visited to Government Medical Hospital, Akola (Maharashtra). The samples were collected in the sterile sample collection tube containing normal saline water. Different bacteria were isolated on the simple media and identified by using cultural, morphological biochemical characteristics and 16SrRNA gene sequencing. The six bacteria were identified as *Klebsiella, Staphylococci, Bacillus, Acinetobacter, Enterococcus* and *Exiguobacterium.* All the identified bacteria were tested against antibiotics Polymyxin B, Bacitracin, Neomycin, Ofloxacin, Ciprofloxacin, Gentamicin, Piperacillin and Tobramycin. The antibiogram pattern of bacteria suggested that most of the bacteria developed a resistance against the mention antibiotics. The combination therapy ear drops also tested against the pathogens isolated from otitis externa patients and the results suggested that the combination therapy is somehow effective but the massive use will lead to development of resistance power in bacteria.

A-138

DETECTION OF VANCOMYCIN RESISTANCE AMOGST THE CLINICAL ISOLATES OF *STAPHYLOCOCCUS AUREUS*

M. V. Sarode and D. L. Barate
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola
E-mail - *sarodeminakshi153@gmail.com*

Over the past few decades, there has been an alarming increase in the prevalence of antibiotic resistant pathogens and strain in serious infections. *Staphylococcus aureus* is an important human pathogen and was first recognized as the etiological agent of suppurative abscesses more than 130 year ago. *S. aureus* infection ranges from mild skin and soft tissue infection to life threating endocarditis, chronic osteomyelitis, pneumonia & bacterimia which are associated with significant morbidity and mortality. *S. aureus* strains with multiple resistant to tetracycline, chlorampenicol and erythromycine were reported until recently, the glycopeptide vancomycin represented uniquely effective solution for treating infections caused by mehicillin resistance pathogens, including *S. aureus.* However, the overuse of this antibiotic in oral form for

condition such as pseudomebranous colitis has inevitably changes this situation. In the present study different clinical samples including pus, blood and urine were collected from the various hospitals of Akola city. A total of 38 isolates were obtained which were identified by standard conventional methods as *S. aureus*. Out of 38 isolates most of them showed MDR to the antibiotic like methicillin, erythromycin, tetracycline, while 20 isolates were found to show the vancomycin resistance.

A-139

PREPARATION OF PROBIOTIC HEALTH DRINK COCONUT KOMBUCHA

A. S. Pethe and S. S. Apotikar

P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola-444001 (MS), India

E-mail - *archanapethe14@gmail.com, shubhangiapotikar7@gmail.com*

Kombucha is a fermented slightly alcoholic, lightly effervescent probiotic drink. Kombucha is fermented tea drink that's made by adding yeast and culture of bacteria. In SCOBY (symbiotic community of bacteria and yeast) Acetobacter sp., Lactic acid bacteria, Glucanobacter sp., Saccharomyces and Zyosaccharomyces are most common fermenting microflora.

Coconut is a tropical fruit. Coconut provides mild flavour and balance taste to kombucha and offer many health benefits too. Coconut meat is good for human immune system. It has antibacterial and antiviral properties. Coconut contains minerals such as copper, potassium, iron. In coconut kombucha preparation shredded coconut was used and after fermentation with kombucha good quality of probiotic health drink is produced.

A-140

THE MICROBIOTA FOUND IN MARINE FISH OF AKOLA CITY, MAHARASHTRA

Roshan R. Hande and Deepika N. Jain

P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola (MS)

E-mail - *roshanhande2@gmail.com, deepika19jain@gmail.com*

Fish has always been an important source of protein diet and it contains more amount of nutritious value. Most of the fishes are used to be eating in south Indian but now a day our meat quality and marine fish quality is unhygienic and resist their own quality. Whenever human being eats that type of fish and meat product it affects our body of human being. Some pathogenic microorganism affects the fish product as well as quality of product, the aim of the study to isolation of pathogenic microorganism from fish. Some pathogenic organism found from fish sample such as a skin, gills, intestine, buccal cavity. It contains number of pathogens such as *Staphylococcus aureus, Pseudomonas aeruginosa, Escherichia coli, Salmonella typhi.* Some pathogenic bacteria resist the human body and are showing antibiotic resistance activity. In present study, we performed for the above said. Awareness is important factor to maintain hygienic condition before eating fish meat product.

A-141

PRODUCTION OF LIQUID BIOFERTILIZER FROM ALOE VERA BY MICROBIAL FERMENTATION

R. V. Lajurkar and A. S. Pethe
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola-444001
E-mail - *ruchikalajurkar54695@gmail.com*

Aloe (Aloe barbadenis miller) is water deficient - tolerant plant. Aloevera contain more than 90% water and rest of the various active ingredients such as amino acid, minerals, vitamins, enzyme, glycoprotein and carbohydrates. Aleo vera have high commercial value in the medical, food, cosmetology, agricultural industries. Aleo vera leaves are used in preparation solid and liquid biofertilizer. Sacchromyces cerevisae (yeast) is use for fermentation of liquid biofertilizer. The fuction of fertilizer is to help to provide nutrient for plant to capture nitrogen and dissolved phosphate for plant growth. It acts as a competitor agent to reduce plant disease pathogen in soil and plant.

A-142

ANTIMICROBIAL ACTIVITY OF DIFFERENT PLANT EXTRACT AND CHEMICALS AGAINST DANDRUFF CAUSING MICROORGANISMS

R. M. Bathe and M. T. Rokade
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola-444001
E-mail - *rupalibathe44@gmail.com*

Dandruff is scalp disorder characterized by scaling, itching and redness on scalp. It is generally caused by fungus *Malassezia furfur*. There are natural and chemical effective remedies to prevent dandruff. To shows antidandruff activity of such products, for the study on *Mallasezia furfur* the causal organism for dandruff, Sabouraud Dextrose Agar (SDA) medium is use for the growth of dandruff causing *Malassezia* species. Different plant extract like neem, aloevera, piper betel leaf and lemon juice etc which shows antifungal activity by zone of inhibition on agar medium. There are some bacteria support dandruff causing fungi, it also shows zone inhibition by different antibiotics on Mueller Hintone Agar (MHA) medium. Comparatively the natural substances and chemicals shows zone of inhibition.

A-143

PRODUCTION OF VINEGAR FROM RAISINS

S. P. Ganoj and A. S. Pethe
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola-444001
E-mail - *shitalganoje@gmail.com, archanapethe14@gmail.com*

Vinegar is a sour liquid used as condiment and food preservative. Vinegar is liquid, fit for human consumption produced from a suitable raw material containing starch, sugar fruits etc. Vinegar contain about 4% acetic acid, varying amount of fruit vinegar traditionally has been used as food preservative. Vinegar product made from the conversion of ethyl alcohol to acetic acid by a genus of Acetobacter. Here we used the raw material for vinegar production is raisins. Raisins contains more amount of nutritive contains. Mostly used black raisins contain high amount of

sugar and calories. Raisins are the good source of antioxidant. Above investigations showed production of good quality vinegar.

A-144

THREATENING OF KLEBSIELLA PNEUMONIAE CARBAPENEMASE (KPC) PRODUCING BACTERIA

Sadhana B. Dewalkar and Deepika N. Jain
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola (MS)
E-mail - *dewalkesadhana@gmail.com, deepika19jain@gmail.com*

Klebsiella pneumoniae Carbapenemase producing Bacteria are a group of emerging highly drug resistant gram-negative bacilli causing infection associated with significant morbidity and mortality. Klebsiella Pneumoniae Carbapenemase (KPCs) is an important mechanism of resistance for an increasingly wide range of gram-negative bacteria and no longer limited to Klebsiella pneumoniae. The present work was carried out to isolate Klebsiella Pneumoniae Carbapenemase producing Bacteria. Further antibiotic resistance pattern by using several ESBL antibiotics was performing. Day by day the resistance has been increased against Carbapenems so this study was carried out.

A-145

DIVERSITY OF ENDOPHYTIC BACTERIA ISOLATED FROM CROPS

S. S. Chatarkar and S. N. Zodpe
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola-444001
E-mail - *shivanichatarkar811@gmail.com*

Endophytes are endosymbionts residing in the internal tissues of host plants without causing any apparent damage to the host. Total fifteen bacterial endophytes were isolated from leaves of various crop plants.Some gram positive and some gram negative bacteria were isolated where gram positive bacteria were predominantly observed conformation of isolates was done on the basis of biochemical character and enzyme study as catalyse, amylase, gelatinase, protease, lipase, Chitinase. These isolates were characterized for plant growth promoting traits as Phosphate solubilization, Production of ammonia, IAA, Production of Pretoria acid and Hydrogen cyanide production.

A-146

SCREENING OF INDUSTRIALLY IMPORTANT ENZYME PRODUCING BACTERIA FROM RHIZOSPHERE SOIL

S. P. Dhoble and D. L. Barate
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola-444001
E-mail - *siddhidhoble81@gmail.com*

Enzymes are protein molecules which are necessary for life. Enzymes are capable to acts as biocatalyst for wide variety of chemical reaction. Although enzymes are produced from animal and plant source, the microbial source are generally the most suitable for commercial application. For industrial use, enzyme must be produced at low cost should be reusable and reproducible. Improvement of microbial Fermentation process. The Amylase, cellulose and Nuclease enzyme

are the industrially important enzyme. This enzyme produced from many bacteria of rhizosphere area. Isolation was done by serial dilution. Pure cultures were maintained on Nutrient agar slant for further study. The cultural, morphological and biochemical characteristics were cheked and identification done as per the Bergey's manual of determative bacteriology. Out of 40 isolates 30 were found to be amylase producer, 26 were cellulase producers and 15 were nuclease producer.

A-147

COMPARATIVE STUDY OF HERBAL EXTRACTS AND ANTIBIOTICS AGAINST PATHOGENIC BACTERIA ISOLATED FROM EXTERNAL EAR INFECTION

Reshma Paralkar, Sonal Dhage and Pooja Mankar
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola-444001
E-mail - *paralkar1625@gmail.com, mankar.pooja22@gmail.com*

The external ear infection refers to the infection of ear pinna and external auditory canal upto tympanic membrane (otitisexterna). The external ear infection further classified as Acute, Chronic and Malignant. The present study deals with the isolation and identification of pathogenic Bacteria from external ear infection and the comparative effect of herbal extracts (Calotro pisgigentica and Daturametel) and antibiotics against the isolated pathogens. The infective ear samples were collected from patients visited to the Government Medical Hospitals. The samples were collected in the sterile sample collection tube containing saline water and further processed in the laboratory. Total 36 bacteria were isolated from external ear infection and were identified as Pseudomonas sp., Staphylococci and Bacillus Sp. The isolated bacteria showed resistivity against most of the broad spectrum antibiotics like Ampicillin, Tetracycline, Chloramphenicol and Ciprofloxacin.The herbal extracts of Calotropisgigentica and Daturametel showed effective results against isolated pathogens. From the results the study reveals that due to extensive use of antibiotics, pathogenic bacteria developed a resistance power against most of the antibiotics which were effective earlier against the same one. To reduce the use of antibiotics we need to move towards ancient herbal medicines.

A-148

CHARACTERISTICS AND PROPERTIES OF α-AMYLASE IN MAIZE AND RICE

Y. D. Bharati and S. V. Narwade
P.G. Department of Microbiology, Shri Shivaji College of Arts, Commerce and Science, Akola
E-mail - *ybharati6@gmail.com*

A key aspect of their work was to study on the basic characterization of cereal alpha amylase with respect to it's activity and properties of maize and rice. It has been well use in food industries for many purposes. Alpha amylase synthesizes high during grain development upon germination in the increase of alpha activity. It was many literature has found that the activity of alpha amylase influenced by cultivars and environmental conditions during grain development. Although the enzyme activity were monitored the grains development periods of three days by using DNS Method. It was obtained high yield alpha amylase activity maximum at development stages. The optimum temperature of alpha amylase activity was at 37^0c and pH will obtaining maize (6.5) and rice (5.5).

A-149

STUDIES ON SPIDER FAUNA OF FAMILY OXYOPIDAE Thorell, 1870 NEAR MALRAJURA FOREST OF PATUR, INDIA

Amrita Shirbhate[1] and Milind Shirbhate[2]

[1]Department of Zoology, Mahatma Phule Arts and Science College, Patur, Dist.-Akola (MS)

[2]Department of Zoology, Shankarlal Khandelwal Arts, Science and Commerce College, Akola, (MS)

E-mail - *milindshirbhate2912@gmail.com, amritavyas2008@gmail.com*

Lynx spider (Oxyopidae) is a family of araneomorph spiders first described by Tamerlan Thorell in 1870. Most species make little use of webs, instead spending their lives as hunting spiders on plants. Many species frequent flowers in particular, ambushing pollinators, much as crab spiders do. They tend to tolerate members of their own species more than most spiders do, and at least one species has been identified as exhibiting social behaviour. There are several genera of Oxyopidae and they differ in their habits and adaptations. Most of them have large spiny bristles on their legs and in many species the bristles form almost a basket-like structure that may assist in confining the prey that they grasp, and protect the spider from its struggles. Most *Oxyopes* and *Hamataliwa* species are small to medium in size; they tend to be drab ambush hunters; depending to some extent on the season, some occupy flowers, ambushing pollinating insects. This is the first reporting checklist from this protected area under territorial forest of Akola subdivision. The spiders were observed in the field itself, photographed and identified. In this survey we recorded the genus entitled Hamadruas, Hamataliwa, Oxyopes, Peucetia, Tapinillus and from the study area.

A-150

EFFECT OF GAMMA RAY TREATMENT ON GROWTH AND DEVELOPMENT IN *CELOSIA CRISTATA* L.

Pallavi K. Rinkey and Rupesh S. Badere

Department of Botany, R.T.M. Nagpur University, Nagpur-440033

Celosia cristata L. (Cockscomb) is an erect, annual herb of family Amaranthaceae with brilliantly coloured inflorescence. It is popular choice for bedding and border plants and is also used as cut flower due to the colour stability of inflorescence. The seeds of cockscomb were irradiated with 200, 250 and 300 Gy of gamma ray. The treatment affected the germination most at the dose of 250 Gy where it was reduced to 56% as compared to control (76%). In contrast, the seedling height was stimulated at 200 and 300 Gy while reduced at the dose of 250 Gy. Gamma ray treatment also affected chlorophyll synthesis in the seedlings, which was evidenced but the induction of chimeras like chlorina and viridis. The frequency of chlorophyll chimera was maximum with the dose 300 Gy. The effect of gamma ray on reproductive development was apparent from decrease in pollen fertility with the increase in its dose. Similarly, gamma ray also affected other morphological and reproductive characters of the plant. Mostly, the plant height was stimulated while the numbers of branches were reduced in response to the gamma ray treatment. Similarly, the gamma ray also affected the comb length, comb diameter and comb circumference of the plants. Notably, the gamma ray treatment enhanced plant survival at all the doses.

A-151

STUDIES ON METABOLITES PRODUCED BY *BACILLUS PARABREVIS* AND THEIR ANTIBACTERIAL PROPERTIES AGAINST HUMAN PATHOGENIC BACTERIA

Saurabh R. Mhatre and Vijay D. Nanoty
Shri R.L.T. College of Science, Akola-444001 (MS)

Soil is the upper most layer of earth crust. It serve land for variety of micro-organism such as viruses, fungi, protozoa, bacteria, actinomycetes etc.Wide range of bacteria are found in soil because it has proved as a good nourishment source. Here in this study particularly*Bacillus parabrevis* have been isolated from rhizospheric soil sample. Bacteria have the ability toutilize the plants roots exudates present in the rhizospheric region to produce variety of primary as well as secondary metabolites. These metabolites are generally produced when suitable conditions are provided to the organism. During study the isolated bacteria were cultured and inoculated in a fermentation media for the production of metabolites. Further cell free supernatant were tested for the potency of metabolites produced, for that human bacterial pathogens *E. coli., S aureus., P. aeruginosa, K. pneumoniae* were tested by Agar well diffusion technique producing zone of inhibition. Best activity of crude extract metabolite was found against *E. coli* pathogenic organism. Accordingly these crude extracts further exploited for the purification and characterization of metabolites by simple chromatographic methods.

NCMRST-2020

Abstracts

Section-B

Electronics, CS, IT, Mathematics and Physical Sciences

B-01

INTERFACE RESOLVED STUDY OF METAL-ORGANIC BILAYER UNDER X-RAY STANDING WAVE CONDITION

Avinash Ganesh Khanderao* and Dileep Kumar
UGC-DAE Consortium for Scientific Research, Indore-452001, India
E-mail - *avinashgk@csr.res.in*

In the present work, prospect to study depth resolved magnetism of metal-organic (MO) bilayer interface has been demonstrated through REFTIM simulations on the basis of theoretical understanding. Interface resolved and depth selective information has been obtained using antinode regions of x-ray standing wave generated through planar waveguide structure. High sensitivity and isotope selectivity of nuclear resonance scattering (NRS) technique, which is time analogue to Mossbauer spectroscopy, has been selected to probe interface magnetism and magnetic moment orientations at Fe/Alq_3 bilayer structure. It is found that use of NRS under XSW can be used to differentiate very small changes in magnetic structure such as orientation and magnitude of the hyperfine field at diffused interfaces. Present work also demonstrates that most of the x-ray-based techniques can be made depth resolved under XSW condition to resolve interfaces for their magnetic and structural properties.

B-02

"CIRCUIT BUILDING BLOCKS (CBBS)" - INNOVATIVE METHOD OF TEACHING AND LEARNING IN THEORY AND PRACTICAL ELECTRICITY, ELECTRONICS AND EMBEDDED SYSTEMS

Dattaraj Vidyasagar[1] and Yash Vidyasagar[2]
[1]Department of Electronics, Shri R.L.T. College of Science, Akola
[2]Department of Electronics, Fergusson College, Pune
E-mail - *dsvidyasagar@rltsc.edu.in, yashvidyasagar@gmail.com*

To develop positive attitudes in students towards applied and basic electronics, embedded circuits and basic electronics course and improve their academic achievement, teachers need to have positive attitude and a sound information background, and have to use technology along with modern instruction methods. Studies have revealed that the teaching and learning of these subjects at +2 level and above is characterized with the use of traditional method which does not give room for active participation and improvement in the academic achievement of students in the subject. The need to employ modern and technological-based instructional approach is thereby essential. This study examines the effect of blended learning approach on students' achievement in the applied and basic electronics, embedded circuits and basic electronics subjects.

The "Circuit Building Blocks (CBBs)" are the systematically designed fundamental building blocks in the learning and teaching process of basic electrical, basic & applied electronics and embedded circuits. The "CBBs" give powerful ability to the teacher to explain the topics in Real Time Environment (RTE). Since it is based on real time environment teaching and learning, the student can easily correlate theory topics with its relevant practical applications simultaneously. Use of CBBs in real theory or practical teaching helps the student understand the concept of the topic vividly, as he/she can work on different circuits by using CBBs. As electronics is nothing but "Learning by Doing".

B-03

IMPLEMENTATION OF ICT (INFORMATION COMMUNICATION TECHNOLOGY) IN TEACHING AND LEARNING CURRICULUM AT +2 LEVEL

Hemant Yashwant Satpute
Department of Electronic Science, Fergusson College, Junior Wing, Pune
E-mail - *hemant.satpute@fergusson.edu*

The introduction of information and communications technologies (ICT) in education reflects and responds to present and future needs of people functioning in an intensely changing and challenging intellectual environment. If ICT based education is a gateway to participation in future culture, society and economy, what should be the nature and form of educational infrastructures? Human, pedagogical, physical, technological and organizational aspects must be considered. ICT, when appropriately used, can serve as a vehicle and a platform for meaningful educational reform geared towards a shift from educational "instructionism" to constructivism. Access to ICT by students and teachers has begun, yet its use supports traditional teaching rather than the shift to new roles and pedagogical practices. Policy implications include the need to develop expertise within the nation, provide training opportunities, and encourage initiative and innovation on the part of teachers.

B-04

SEARCH ENGINE OPTIMISATION (SEO) AND EFFECTIVE CUSTOMISATION TECHNIQUES USING RANK MATH PLUGIN

Dattaraj Vidyasagar[1] and Hemant Yashwant Satpute[2]
[1]Department of Electronics, Shri R.L.T. College of Science, Akola
[2]Department of Electronic Science, Fergusson College, Pune
E-mail - *dsvidyasagar@rltsc.edu.in, hemant.satpute@fergusson.edu*

Information and communication technologies (ICT) are simply technologies arising from scientific and technological progress in computer sciences, electronics and telecommunications. They enable us to process, store, retrieve and broadcast valuable information in text, sound and video form. In an increasingly interconnected world, brought about by the application of technological advances to all sectors of society, quality education necessitates active and innovative exploration to maximize the benefits of ICT and develop and maintain the partnerships that use of ICT in education requires.

In this era of ICT and digital student generation "Google it" has now become a keyword for everything. Anybody need to have an information or need to know something "how to do", then immediately the answer comes to him/her is "Google it!" That means in other words search engine has become an inherent part of our life for searching resources, persons, remedies, knowledge, etc. On search engine, many links are available in the form of websites. Many web developers develop different websites with variety of design tricks to attract the people towards them and their product or business. Hence every developer wishes that his / her webpage or site should be listed with topmost priority by the search engine. So Search Engine Optimisation (SEO) has become the key to the success of the website. In this regard "Rank Math" plugin available with Word Press Content Development System (CDS) or web developer tool plays a vital role. It helps the developer to display the links available on one's web page quickly, readily with topmost priority on the first page of result produced by any search engine.

Owing to these reasons, it has become the necessity of time to make students aware of these techniques while developing the web sites for variety of purposes and while learning various tools and techniques for the same purpose. In this work an attempt is made to demonstrate the Search Engine Optimization (SEO) and effective customization techniques using Rank Math Plugin.

B-05

DATA LOGGING SYSTEM OF REAL TIME AMBIENT TEMPERATURE AND DIFFUSED SUNLIGHT INTENSITY MEASUREMENT DURING SOLAR ECLIPSE

Hemant Yashwant Satpute[1] and Yash Vidyasagar[2]
[1]Department of Electronic Science, Fergusson College, Junior Wing, Pune
[2]Department of Electronics, Fergusson College, Pune
E-mail - *hemant.satpute@fergusson.edu, yashvidyasagar@gmail.com*

चिन्तनीया हि विपदां आदावेव प्रतिक्रिया ।
न कूपखननं युक्तं प्रदीप्ते वन्हिना गृहे ॥

It is improper to start digging the well after the house has caught fire! We should be pro-active i.e. we should have the solutions ready even before some problem comes to us.

Studies have revealed that the teaching and learning of any subject at +2 or at higher level is characterized with the use of traditional method which does not give room for active participation and improvement in the academic achievement of the students in the subject. The need to employ modern and technological-based instructional approach is thereby essential.

Keeping these things in mind, being teacher of Fergusson College since past 20 years, me and my student Yash Vidyasagar, pursuing his M.Sc. degree in Department of Electronic Science, we decided to conduct certain activities at the college level. In Fergusson Junior College, during the Solar Eclipse span of 26 December 2019, we conducted two important measurements and the analysis of effect of Annular Solar Eclipse on environment temperature and light intensity. This work narrates the detailed story about it.

B-06

A STUDY OF ZONAL BASED, HU'S METHOD AND ZERNIK MOMENT FEATURE EXTRACTION TECHNIQUES FOR CHARACTER RECOGNITION

Dewashri V. Mane and D. N. Besekar
Department of Computer Science, Shri Shivaji College of Arts, Commerce and Science, Akola-444002, India
E-mail - *dewashri30june@gmail.com, dnbesekar@gmail.com*

The Character recognition is a process of converting the text into machine encoded text. In this process the feature extraction plays a vital role for more accurately recognized character. Feature extraction is a process of the features or characteristic of character or numerals. There are many techniques used for feature extraction. This work provides some feature extraction techniques such as zonal, zernik and Hu's method which gives the best result.

B-07

MATH-EXCEL - TEACHING, LEARNING AND EVALUATION AID FOR THE CURRICULUM AT +2 LEVEL

Hemant Yashwant Satpute[1] and Aradhana Arvind Ambre[2]
[1]Department of Electronic Science, Fergusson College, Junior Wing, Pune-4
[2]Department of Mathematics, Fergusson College, Junior Wing, Pune-4,
E-mail - *hemant.satpute@fergusson.edu, rajiaambre@gmail.com*

In today's era of Information Communication Technology (ICT) it has become essential for teachers as well as students to make use of readily & easily available technology to enhance teaching and learning process. Also it has become a part of life to inculcate good manners and healthy ethical culture. Students need to become familiar with the proper use of technologies available to them.

Technology assisted learning can be viewed as computer assisted learning, and as pedagogy for student-cantered and collaborative learning. Early developments in this focused-on computer assisted learning, where part or all the learning content is delivered digitally. More recently the pedagogical dimension of learning has become prominent. Technological revolution supports all forms of electronically supported learning and teaching. The information and communication systems, whether networked learning or not, serve as specific media to implement the learning process.

Being a teacher, our aim is to always encourage students and other colleague teachers to make optimum use of PC machine which one has purchased and full functionality of the softwares available with that machine.

Present student generation is a "Digital Generation". Technology and related tools are available to preschoolers immediately and without any struggle. So teachers teaching to this generation, needs also to be an expert in using and applying this available technology to the present model of teaching curriculum.

This work also presents an idea of how one can develop teaching, learning & evaluation aids useful for teachers of Junior College (+2 level) (Science Stream) using readily and most commonly available softwares on PCs.

B-08

IMPLEMENTATION OF "CIRCUIT WIZARD" FOR EFFECTIVE TEACHING AND LEARNING IN PRACTICAL ELECTRICITY, ELECTRONICS AND EMBEDDED SYSTEMS

Yash Vidyasagar
Department of Electronics, Fergusson College Pune, India
E-mail - *yashvidyasagar@gmail.com*

Knowledge is acquired through facts, information and skill through experience and education. When we practically work on a topic, we come across more facts, information and in turn we start building up our knowledge. The awareness or familiarity gained by experience of a fact or situation while working on a particular topic generates deeper comprehension.

Many students hesitate to move ahead in learning Electronics because of the fear of failures. Also to build actual circuits after buying all the components by spending sufficient amount of money and getting failure as a reward discourages many students or to even

researchers and developers. That's exactly where the simulation software for electronic circuits comes into picture and plays a vital role in relieving the students from the fear of failures and also encourages them towards new investigations. Also, simulation software also makes the learner expert in fault finding and analysis of the electronics circuits and components.

The "Circuit Wizard" presented here is the real time simulation tool, for practical comprehension of the topics of basic electricity, practical applied electronics and embedded systems. You can use this tool to visualize the actual working of the circuit, model or a network and analyze it for all possible parameters, by using number of in-built measuring instruments given in it.

One can get outstanding results of improved understanding of the topic, both in teaching and learning processes. The "Circuit Wizard" is freely available on the net with its student edition, which contains rich visual library of power supply, connectors, input components, passive components, discrete semiconductors, logic gates, integrated circuits, output components, microcontroller boards and visual instruments.

B-09

STUDY OF COMPACT FLUORESCENCE LAMP PHOSPHORS

K. A. Koparkar
M.S.P. Arts, Science and K.P.T. Commerce College Manora, Dist.-Washim (MS)
E-mail - *kakoparkar@gmail.com*

The five CFLs powder sample of various companies (Bajaj, Philips, Usha Lexues, Khaitan, and HPL) were used to characterize by photoluminescence (PL) spectra. The PL emission spectra were measured in the range between 380-780 nm. The PL spectra show out of five CFLs, Philips is best CFL due to optimum emission intensity.

B-10

ENHANCING THE QUALITY OF TEACHING AND LEARNING THROUGH CROSSWORD PUZZLE SOLVING: A PUZZLE STORY

Hemant Yashwant Satpute
Department of Electronic Science, Fergusson College, Junior Wing, Pune-4
E-mail - *hemant.satpute@fergusson.edu*

In today's era of Information Communication Technology (ICT) it has become essential for teachers as well as students to make use of readily & easily available technology to enhance teaching and learning process. Also it has become a part of life to inculcate good manners and healthy ethical culture. Students need to become familiar with the proper use of technologies available to them. This paper narrates the experiment conducted in Fergusson College, Junior Wing, Pune for the following purposes. (1) To demonstrate the fact that today's internet technologies helps a lot for the self-development of a person. (2) To learn the fact that today's available technology help students in the study of their own subjects of interests. (3)To learn the fact that cross word puzzles are not only for the entertainment but also can be used for educational purpose. (4) To learn the fact that with the help of cross word puzzles one can acquire the mastery over the subject. (5) To demonstrate the fact that education, studies and entertainment are not separate quantities but they are supportive to each other. (6) To understand the fact that computer's internet technology is really useful for the students and it helps to boost the performance of the students during the exams. (7) To develop a group culture

in the students so that using the platform of the internet (which is easily available today for every one) students can interact with each other and also with the teachers comfortably. (8) To develop the ability of expressing own thoughts precisely and with the help of correct words and with few lines. (9) To develop an ethical culture and also to teach and develop the good manners to be followed while using and practicing internet technology for official works.

The experiment was conducted twice in a year 2012. The results obtained after each experiment were amazing. There was a net increase of 45% in the marks of the students in the exams conducted immediately after the experiments. A tremendous growth was observed in the confidence level and interactions of the students with each other and with the teachers. The clarity of thoughts observed while expressing one's views about any event was adorable.

B-11

CREATIVE TOOLS FOR ENHANCED TEACHING AND LEARNING IN GEOGRAPHY USING INFORMATION COMMUNICATION TECHNOLOGY (ICT)

Hemant Yashwant Satpute[1] and Suraj Kankatav[2]

[1]Department of Electronic Science, Fergusson College, Junior Wing, Pune-4

[2]Department of Geography, Fergusson College, junior Wing, Pune-4

E-mail - *hemant.satpute@fergusson.edu, skankatav@gmail.com*

For geography to be meaningful and relevant, students should be exploring what is happening in their world today. This is known as living Geography. The use of Information Communication Technology (ICT) in geography helps learners learn by providing access to large quantities of information on people, places and environments. It also provides the framework for analysing data to investigate patterns and relationships in a geographical context. Once learners have made their findings, ICT can then help them organise, edit and present information in many different ways. Undoubtedly, ICT is the medium of today's digital generation of learners. It is the medium of youngsters and it plays a vital role in almost every aspect of their lives. Therefore, its use in a classroom/learning environment supports the delivery of geography in a way that makes it highly engaging. ICT provides teachers and students with immediate access to up-to-date, topical geographical information and our highly interconnected world. It is a dynamic medium which, when used appropriately, can significantly reinforce and deepen geographical knowledge and understanding as never before. Moreover, it has been shown that students often sustain concentration levels more effusively when given the opportunity to support their learning through the use of ICT. This is due to the ability of modern technology to collect an extensive range of geographical data for exploring physical and human patterns, distributions and processes that would not be possible without ICT. The same technology also allows students to collect, display, communicate and evaluate findings in a highly creative and personal fashion. This paper covers the prerequisites to know about when, why and how ICT should be used to teach geography. It also describes few resources which can be used for teaching geography lessons to +2 level college students. Finally, this paper suggests some creative ways of teaching and learning Geography.

B-12

CARBON MONOXIDE (CO) PPM DENSITY MEASUREMENT WITH HIGH AND LOW HEATING CYCLES USING MQ7 DISCRETE SEMICONDUCTOR SENSOR

Yash Vidyasagar[1] and S. M. Nagrale[2]
[1]Department of Electronics, Fergusson College, Pune, India
[2]Department of Zoology, Shri R.L.T. College of Science, Akola
E-mail - *yashvidyasagar@gmail.com, sushilnagrale_rlt@rediffmail.com*

The CO equally affects healthy and unhealthy people. The breathing of CO can cause headache, vomiting, nausea and dizziness. If the level of CO is high enough, it a person may become unconscious or die. Exposure to moderate and high levels of CO over long periods of time has also been linked with increased risk of heart disease. If more amount of CO is taken in breathing, it may reduce the amount of oxygen carried by haemoglobin around the body in RBC. Due to this vital organs, such as brain, nervous tissues and the heart, do not receive enough oxygen for proper working of bodily functions. So to measure the density of CO in surrounding atmosphere we have used the reliable MQ7 sensor for precise measurements. The sensitive material of MQ-7 gas sensor is SnO_2, which with lower conductivity in clean air. It make detection by method of cycle high and low temperature, and detect CO when low temperature *(heated by 1.5V)*. We have designed simple Arduino UNO based system, to convert change of conductivity to correspond output signal of gas concentration. MQ-7 gas sensor has high sensitivity to Carbon Monoxide. The sensor could be used to detect different gases contains CO, it is with low cost and suitable for different application.

B-13

IMPLEMENTATION OF MULTISIM - A CIRCUIT SIMULATION SOFTWARE FOR EFFECTIVE TEACHING AND LEARNING IN ELECTRONICS AT +2 LEVEL

Hemant Yashwant Satpute[1], Dattaraj Vidyasagar[2] and Yash Vidyasagar[3]
[1]Department of Electronics, Fergusson College, Jr. Wing, Pune
[2]Department of Electronics, Shri R.L.T. College of Science, Akola
[3]Department of Electronics, Fergusson College, Pune
E-mail - *hemant.satpute@fergusson.edu, dsvidyasagar@rltsc.edu.in, yashvidyasagar@gmail.com*

The present work narrates an idea of how one can include the use of Circuit Simulation Software in the teaching schedule/curriculum to enhance teaching and learning electronics subject at +2 level. There are many such simulation software/tools available for this purpose. As an example, we are presenting here the use of Multisim 11.0 software used for teaching FYJC and SYJC Vocational Electronics students of Maharashtra State Board. Multisim is the schematic capture and simulation application of National Instruments Circuit Design Suite, a suite of EDA *(Electronics Design Automation)* tools that assists you in carrying out the major steps in the circuit design flow. It is designed for schematic entry, simulation, and feeding to downstage steps, such as PCB layout. We have been using this since last 5 years for demonstrating the working of various electronic circuits. A brief review of all the activities conducted is presented here. In fact, once we have used the software to conduct HSC practical examination in vocational electronics subject in a college where none of the experiments were conducted during the year, but we have projected the simulated circuit on screen with the help of a projector and then asked students to note down the readings and do further processing necessary for the board examination.

B-14

TEMPERATURE DEPENDENCE OF DRIFT AND MOBILITY CHARACTERISTICS OF ELECTRONS IN VACUUM AND SEMICONDUCTOR

Yash Vidyasagar[1] and Hemant Yashwant Satpute[2]
[1]Department of Electronics, Fergusson College, Pune
[2]Department of Electronics, Fergusson College, Jr. Wing, Pune
E-mail - *yashvidyasagar@gmail.com, hemant.satpute@fergusson.edu*

When it comes to the mobility and drift factors of electrons, the electronics configuration of silicon has to be taken into consideration. The 3s-levels (all having same energy) in all N number of atoms, will have 2N number of electrons. But the 3p-levels (all having same energy), in all N number of atoms, which have a capacity of 6 electrons each, have only 2N number of electrons.

Now suppose the natural (i.e. actual) inter-atomic separation between the Silicon atoms in the crystal is ‘a’ and all these atoms are brought closer to each other from the location ‘r’ to their actual position ‘a’, where r>> a, by gradually moving the atoms closer to each other.

The conductivity (σ) of a semiconductor increases with increase in temperature: This is because more number of covalent bonds break and more number of free electrons are available for the conduction of electric current. The conductivity (σ) of conductors (metals) decreases with increase in temperature. Because as the temperature increases the kinetic energy of free electrons increases. So the number of collisions between electrons and ions also increases.

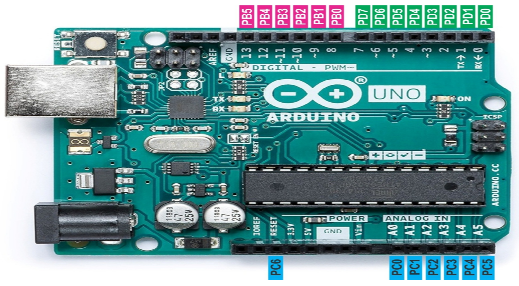
Due to this, the flow of current carriers is opposed, which increases the resistivity (ρ) of the metal. Hence, the conductivity of metals decreases with increase in temperature.

B-15

ON THE DIRECT PORT REGISTER ADDRESSING TECHNIQUE IN ARDUINO UNO TO SIMPLIFY THE PROGRAMMING

Yash Vidyasagar[1] and Dattaraj Vidyasagar[2]
[1]Department of Electronics, Fergusson College, Pune
[2]Department of Electronics, Shri R.L.T. College of Science, Akola
E-mail - *yashvidyasagar@gmail.com, dsvakola@gmail.com*

We know that Arduino UNO is built around the microcontroller ATMega328p. This microcontroller has 28 pins i.e. it has 3 PORTs: PORTB, PORTC and PORTD, as we know it from the AVR technique of programming the device. To reduce the number of steps in the programming we can use the technique of direct port register addressing. The Arduino can be coded using Direct PORT Register Addressing. For that we have to understand the architecture of Arduino in terms of PORTs.



Digital pins
0 – PD0
1 – PD1
2 – PD2
3 – PD3
4 – PD4
5 – PD5
6 – PD6
7 – PD7

Digital pins
8 – PB0
9 – PB1
10 – PB2
11 – PB3
12 – PB4
13 – PB5

Analog pins
A0 – PC0
A1 – PC1
A2 – PC2
A3 – PC3
A4 – PC4
A5 – PC5

Direct PORT Register Addressing Code

```
        MSB Position                                    LSB Position
             ↓                                              ↓
PORTD:  PD7   PD6   PD5   PD4   PD3   PD2   PD1   PD0
PORTD=0b11111111;
```

void setup() {DDRD=0b11111111; // all pins of PORTD defined as output pins}

void loop() {PORTD=0b00000000; // LOW signal is sent on all pins of PORTD delay(1000); PORTD=0b11111111; // HIGH signal is sent on all pins of PORTD delay(1000);}

B-16

TRICKY SITUATION IN MAXIMUM POWER TRANSFER THEOREM IN SPECIAL CASE OF AN AMPLIFIER

Yash Vidyasagar[1] and R.D. Chaudhari[2]

[1]Department of Electronics, Fergusson College, Pune

[2]Department of Electronics, Shri R.L.T. College of Science, Akola

E-mail - *yashvidyasagar@gmail.com, rdchaudhari20@gmail.com*

The maximum power transfer theorem is a very useful tool in applied electronics and electronic engineering. It has wide range of applications in amplifier. Its concept is as follows:

When a load is connected across a voltage source or across output of an amplifier, particular amount of power is transferred to the load. The amount of power being transferred depends on the value of the load resistance *(RL).* Its value is always unique, for that particular source. To adjust the maximum transfer of power from source to the load, the value of the load resistance and the value of internal resistance *(Ri)* of the source must be equal.

B-17

THE INITIAL INVESRION DENSITY IS CONSTANT THROUGH OUT THE LASER MEDIUM FOR CALCULATING RADIAL VARIATION OF PEAK POWER ACROSS THE LASER BEAM

A. P. Pachkawade

Department of Physics, Rajarshee Shahu Science College, Chandur Rly., Dist.-Amravati

E-mail - *ashwinashwin1978@rediffmail.com*

The most important characteristics of any laser is the divergence of its output radiation which plays very important role in the determination of photon flux. The angles of divergence of output beam are different for Copper Vapour Laser and pulsed laser. The angle of divergence determines the photon flux when the beam is focused using focusing optics. Further the output beam is focused the diverging beam converges and get focused at the same point. In the present work, the analytical expressions are obtained for the peak power output of the CVL without mirror, the intensity of the laser radiation across the laser beam and peak power angle of divergence along the diameter of the discharge tube. The angle of divergence is determined by the absorption coefficients, initial inversion density and the dimensions of the laser plasma column in a direction perpendicular to the direction of propagation of the beam. The angle of divergence also increases with the dimensions of the plasma column in a direction perpendicular to the direction of propagation of the beam. From the calculation of peak power across the laser beam desired angle of divergence may be obtained. The half peak power angle of divergence for initial inversion density 0.2 and 0.4 are 20mrad and 30mrad respectively in Copper Vapour Laser.

B-18

UNDER THE STUDY OF GLOW DISCHARGES OF VARIOUS ELEMENTS, A MONOCHROMATIC LIGHT AT VARIOUS WAVELENGTHS GENERATED

A. P. Pachkawade[1] and S. K. Devade[2]
[1]Department of Physics, Rajarshee Shahu Science College, Chandur Rly., Dist.-Amravati
[2]Department of Physics, Shankarlal Khandelwal College, Akola
E-mail - *ashwinashwin1978@rediffmail.com*

The dc glow discharge spectrometry is the most essential part of the electrical and spectral emission studies of the molecules, atoms and ions in the interface of solid and liquid. We measured the intensity of radiation emitted by dc glow discharge as a function of discharge current for the different electrolytes along with V-I characteristics. The voltage-ampere characteristics during a glow discharge in the atmospheric pressure gas using an electrolytic solution as the anode and metal electrode like tungsten as a cathode were carried out. Under the study of glow discharges of various elements, a monochromatic light at various wavelengths generated. Few species shows a change in the color of the glow when discharge current increased.

B-19

BIANCHI TYPE-IX BOUNCING COSMOLOGICAL MODEL WITH VISCOUS FLUIDS

Yogendra D. Patil and Ankush F. Gotarkar
Department of Mathematics, Vidnyan Mahavidyalaya, Malkapur, Dist.-Buldana
E-mail - *ydpatil2107@gmail.com, ankgot@gmail.com*

Bouncing behavior of Bianchi Type-IX cosmological model has studied with viscous fluid by considering different forms of scale factors. Some physical properties of the fluids which realize them and the possibility to have acceleration after the bounce have been discussed.

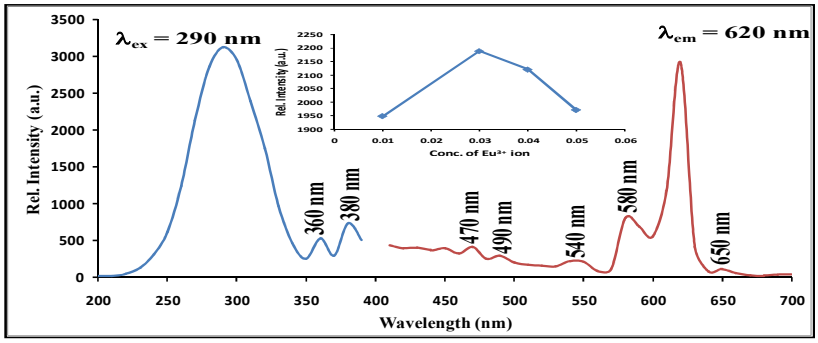
B-20

COMBUSTION SYNTHESIS AND PHOTOLUMINESCENCE CHARACTERISTICS OF $Sr_2Mg(BO_3)_2:EU^{3+}$ PHOSPHOR

Y. P. Manwar[1], S. B.Tayade[1] and R. P. Sonekar[*2]
[1]Department of Physics, Shri R.L.T. College of Science, Akola-444001 (MS), INDIA
[2]Department of Physics, G.S. College, Khamgaon, Dist.-Buldhana (MS), INDIA
E-mail - *sonekar_rp@yahoo.com*

In the present work photoluminescence preparation of Eu^{3+} doped $Sr_2Mg(BO_3)_2$(SMBO) phosphor by solution combustion synthesis technique have been reported. Its phase, UV photoluminescence properties, surface morphology and concentration quenching mechanism were investigated. The PL and PLE spectra of composition optimized $Sr_{1.99}MgEu_{0.1}(BO_3)_2$ phosphor have been studied. The phosphors exhibit bright red emission under the excitation of 290 nm which can be attributed to the charge transfer transition of O^{2-}-Eu^{3+}, and the sharp lines between 360 and 380 nm were due to the f–f transition of Eu^{3+} ions. The characteristic emission peaks recorded at 540, 580, 620 and 650 nm ($^5D_0 \rightarrow {}^7F_{J=0,\ 1,\ 2,\ 3}$) were attributed to the 4f–4f intra shell transitions of Eu^{3+} ions. This indicates that the Eu^{3+} ion occupies a non-inversion centre position in

the matrix. The concentration quenching of Eu3+ ions in SMBO have also been investigated and it is seen that the optimum concentration of Eu3+ ions is 3 mol %.



B-21

COMPARATIVE ANALYSIS OF SILICON OVER GERMANIUM IN THE MANUFACTURING OF LSI AND VLSI TECHNOLOGY SEMICONDUCTOR

Yash Vidyasagar
Department of Electronics, Fergusson College Pune, India
E-mail - *yashvidyasagar@gmail.com*

There are several reasons Silicon has become the preferred semiconductor in the present, over Germanium. Easy formation of SiO_2 layer in silicon than germanium, during the manufacturing of advanced electronic devices like MOSFETs, etc. Silicon is largely found in sand and so it is very cheap as compared to germanium. Germanium is generally found in the form of different compounds due to its high reactivity. Silicon has large band gap (1.12eV) than germanium (0.7eV). So, at same temperature, the thermal pair generation in silicon is less than germanium. However, the germanium diode has one major advantage over Si.

Ge has higher electron and hole mobility and because of this Ge devices can function up to a higher frequency than Si devices. The germanium diode is also superior to silicon diode in terms of energy loss, current loss, etc. The Ge diode loses only 0.3-0.4 a volt while a silicon diode loses about 0.6-0.7 volts. But, the cost of production and non-versatility of germanium diode, makes it poor than silicon diode.

B-22

STUDY OF EFFECT OF NANOPARTICLES OF TiO_2 ON CHANGING ELECTRICAL PROPERTIES OF POLYPRROLE COMPOSITES

K. B. Raulkar
Department of Physics, Vidya Bharati Mahavidyalaya, Amravati-444602 (MS), India

PPy/TiO_2 composites with different weight percentage of TiO_2 (5%, 10%, 15%, 20% and 25%) were obtained by in situ emulsion polymerization of pyrrole in an aqueous solution. Different composites characterizations were done with the help of X-Ray Diffraction (XRD), Scanning Electron Microscopy (SEM) and Fourier Infrared Spectroscopy (FTIR). The dc conductivity of the composites was measured as a function of temperature in the range 30^0C to 180^0C and was found maximum for PPy/TiO_2-15% composition (37.56 x 10^{-4} S/cm, at 120^0C). The prepared samples also studied to check the ac conductivity as a function of frequency and its maximum value was found to be 78.05 x 10^{-3} S/cm for PPy/TiO_2-15% at room temperature 30^0C.

B-23

INVESTIGATE VISIBLE QUANTUM CUTTING IN $KCaF_3:Gd^{3+}$, Eu^{3+} PHOSPHOR

S. R. Jaiswal[*1], P. A. Nagpure[2], V. B. Bhatkar[2] and S. K. Omanwar[3]
[1]Department of Physics, Shri R.L.T. College of Science, Akola-444001, India
[2]Department of Physics, Shri Shivaji Science College, Amravati-444602, India
[3]Department of Physics, Sant Gadge Baba Amravati University, Amravati-444602, India
E-mail - *srjaiswal07@gmail.com*

In this work we prepared $KCaF_3$ Co-doped with Gd^{3+}, Eu^{3+} phosphor synthesis via reactive atmosphere process. Powder X-ray diffraction analysis shows structural purity of as-synthesized phosphor. The emission and excitation spectra of $KCaF_3:Gd^{3+}$, Eu^{3+} were investigated using the VUV beam line of the Beijing Synchrotron Radiation Facility (BSRF). Hear we investigate the mechanism of Energy transfer in Gd^{3+} ions to Eu^{3+} through cross relaxation process. In this phosphor we got negative results. The excitation peak of 273 nm was very much greater than that of the excitation peak of 147 nm at emission wavelength 593 nm. Hence there was no energy transfer in between the ions Gd^{3+} and Eu^{3+}. The results was no quantum cutting in the given phosphor material.

B-24

DESIGN AND DEVELOPMENT OF MICROCONTROLLER BASED SYSTEM USING COMMONLY AVAILABLE SENSORS AND ITS POSSIBLE APPLICATIONS IN AGRICULTURE

Nagnath Bhusnar[1] Pravin Bhadane[2] and A. D. Shaligram[3]
[1]Department of Electronic Science, Modern College, Shivaji Nagar, Pune-1, India
[2]Department of Electronic Science, Nowrosjee Wadia College, Pune-1, India
[3]Department of Electronic Science, S.P.P.U., Pune-1, India
E-mail - *nagnathbhusnar10@gmail.com, pravin16163@gmail.com, adshaligram@gmail.com*

Design and development of microcontroller-based system has been carried out in the present work. The main purpose of the work is to use commonly available sensors in the field of agriculture. The sensors used in the present work are for the detection of motion, sound, pressure, temperature, and altitude. The microcontroller based automatic system gives direct digital value of measured parameters. Some possible applications of the designed system in the field of agriculture are discussed with suitable illustration. The work done has scope for extension of including some more sensors and actuators. The work can be further expanded by employing inbuilt wireless communication protocol for the designing of wireless sensor network system.

B-25

ROLE OF ELECTRONICS IN AUTOMATION

Niteen Shridhar Mohod
Department of Electronics, Shri Shivaji College of Arts, Commerce and Science, Akola, Maharashtra, India
E-mail - *mohodniteen@gmail.com*

Automation becomes the significant word of this era and automation could not be possible without intervention of electronics. It basically means the technology used to perform the process with minimal human assistance. Starting from home (microwave, washing machine,

dryer, TV, AC, etc.) to space aviation industry, there is literally NO INDUSTRY that doesn't rely on electronics. Even most of the analog systems are also converted to digital one. Without Electronics nothing will move in this world. Electronics control the electrons in an effective way. So demand for Electronics will grow in future. Every equipment has much more electronics within it. With electronics application in almost all the automation the advantages like accuracy, efficiency, time saving, compactness and user friendliness has gone up resulting in reducing human dependency.

B-26

COMPARATIVE ANALYSIS OF AMBIENT TEMPERATURE USING STEINHART-HART EMPIRICAL EQUATION AND DIGITAL THERMOMETER

Trupti R. Ugale[1], Snehal D. Pophali[1], Pooja G. Rathod[1], Pritee D. Thakare[1] and Dattaraj Vidyasagar[2]

[1]Department of Mathematics, Shri R.L.T. College of Science, Akola

[2]Department of Electronics, Shri R.L.T. College of Science, Akola

E-mail - *truptiugale2018@gmail.com, snehal.pophali24198@gmail.com, prathod4373@gmail.com, pritee141096@gmail.com, dsvakola@gmail.com*

"Mathematics is like the ocean - rough, boisterous and fearful on the surface, but having precious pearls and gems of the purest ray serene at the bottom. From the finite, mathematics leads us to the region of the infinite!"

The Steinhart and Hart equation is the focus of this research paper. It is an empirical expression that has been determined to be the best mathematical expression for the resistance – temperature relationship of a negative temperature coefficient thermistor. It is usually found explicit in T where T is expressed in degrees Kelvin.

The equation is often used to derive a precise temperature of a thermistor, since it provides a closer approximation to actual temperature than simpler equations, and is useful over the entire working temperature range of the sensor. Steinhart–Hart coefficients are usually published by thermistor manufacturers.

We have used the Arduino microcontroller platform for technical part of this research. The Arduino executes the code and converts the relational value of change in thermistor resistance into corresponding precise value of real time ambient temperature. However, the empirical equation in the research derives the value of temperature in degree Kelvin. So using simple conversion technique we have obtained the temperature value in degree Celsius.

This value of temperature obtained from the equation process, is then compared with real time temperature value of standard digital thermometer in our experimental findings. This comparative analysis manifests that the Steinhart-Hart empirical equation measurement beats the standard digital thermometer readings not just in terms of precision, but in poor sampling rate of a typical digital thermometer and its inability not to sample the real time temperature changes in number of fast events *viz. "washing soda + water" exothermic reaction, to obtain the complete log of all temperature variations throughout the reaction*.

B-27

FIVE DIMENSIONAL PLANE SYMMETRIC MODIFIED HOLOGRAPHIC RICCI DARK ENERGY COSMOLOGICAL MODEL IN LYRA MANIFOLD

S. R. Bhoyar[1] and K. R. Borgade[2]
[1]Department of Mathematics, Phulsing Naik Mahavidyalaya, Pusad-445216, Maharashtra, India
[2]Jagdishprasad Jhabarmal Tibrewala University, Jhunjhunu-333001, Rajasthan, India
E-mail - *sbhoyar68@yahoo.com, borgadekailas143@gmail.com*

This work explores the behavior of cosmological model in the presence of matter and a modified holographic Ricci dark energy for five dimensional plane symmetric space-time in the framework of Lyra (Math.Z.54, 52: 1951) manifold. The hybrid expansion law (Akarsu *et al*., JCAP, 01, 022 (2014)) has been used to get a determinate solution. The physical condition that is shear scalar proportional to the expansion scalar is used to obtain the solution of the field equations. We obtain many interesting realistic solutions governing the present day model of the universe. Some physical and kinematical properties of the models are discussed in detail.

B-28

SHRI P. R. SARKAR'S CONCEPT OF ORIGIN OF THE UNIVERSE

Gajanan S. Wajire
Department of Electronics, Shri Shivaji College of Arts, Commerce and Science, Akola
E-mail - *gsw.741@gmail.com*

One of the human wont is that whatever we know regarding any subject or any object, we say that it exists. But if we do not know its characteristics or other parameters, we either say that it does not exists or it is mysterious; or in a more intelligent style, we will say it is an abstract. That means, we try to conceal our limitations or hide our imperfections. In this universe, whatever comes within the scope of our senses or within the periphery of our perception, we say, "It is", and whatever is beyond the arena of the senses or the jurisdiction of perception, we cannot say anything. Hence, as per our general logic, our world functions within the limitations of our senses and perceptions. In view of human beings, we know two phases of cosmic realms as introvert or extrovert. In its first phase, in the phase of extrovert, "subtle" is transmuted into "crude"; and in the returning phase of introvert, "crude" is metamorphosed into "subtle". In this progress, rather in this semicircular approach, there may be subtler objects in the scope of matter. Many more objects are subtler than protons, neutrons or electrons, but we find no alternative to say that they are either electron or proton or neutron or any other. And similarly, in the psychic sphere there may be entities subtler than ectoplasm or its extra-psychic coverage, endoplasm.

Many entities which come within the realm of both physicality and psychic expressions which are subtler than sub-atomic and elementary particles like electrons, quarks, leptons, higgs-bosons and so on. Some of the entities in the psychic realm may be subtler than the ectoplasm. As per the Standard Model of particle physics, prior to the Higgs-bosons, 'God particles' are predicted to be the most subtle and root particles in this universe. That means, beyond the imaginations and perceptions of science, the scientists are also referring the unknown particles as 'God particles'. For such particles or for such entities, Shri P. R. Sarkar used the term "Microvitum", which is the "mysterious emanation of cosmic factor".

B-29

GROWTH AND CHARACTERIZATIONS OF TIN SULFIDE THIN FILMS

Syed Ghause Ibrahim
Nanostructured Thin Film Materials Laboratory, Department of Engineering Physics, Prof. Ram Meghe College of Engineering and Management, Badnera-444701, Maharashtra, India
E-mail - *ibrahim.ghause@gmail.com*

Nanostructured p-type tin sulfide thin films were obtained by using chemical spray deposition technique onto glass substrates at 623 K. The films were characterized to study the optical and electrical properties. The optical band gap of the tin sulfide film was determined from optical transmittance data, in the spectral range 380–1100 nm and the direct band gap energy (Eg) was found to be 1.28 eV. Electrical resistivity measurements were carried out using two point d.c probe method and thermo-emf voltage developed across the film was measured to find the type of conductivity of tin sulfide thin film.

B-30

PREPARATION OF NITROGEN-DOPED REDUCED GRAPHENE OXIDE AS SPINTRONICS FERROMAGNETIC CONTACTS FOR DEVICE FABRICATION

Kailash Nemade[1], Sandeep Waghuley[2] and Priyanka Nemade (Dudhe)[3]
[1]Department of Physics, Indira Mahavidyalaya, Kalamb-445401, India
[2]Department of Physics, Sant Gadge Baba Amravati University, Amravati-444602, India
[3]Department of Chemistry, Jankidevi Bajaj College of Science, Wardha-442001, India
E-mail - *krnemade@gmail.com*

In the present work, Nitrogen-doped Reduced Graphene Oxide was prepared by mild chemical reduction route. A primary attempt is made to study the ferromagnetic properties of Nitrogen-doped Reduced Graphene Oxide for Spintronics Ferromagnetic Contacts in Gate-controlled Spin Valve. The structural properties of Nitrogen-doped Reduced Graphene Oxide were analyzed using X-Ray Diffraction technique. Similarly, the topography of as-prepared Nitrogen-doped Reduced Graphene Oxide was studied using Transmission Electron Microscopy (TEM). The chemical purity of sample under study was confirmed using Raman Spectroscopy. Superconducting quantum interference device (SQUID) technique was employed to analyze the magnetic properties of Nitrogen-doped Reduced Graphene Oxide. The main accomplishment of this work is that Gate dependence measured spin signal modulation, showing ON/OFF state as transistor.

B-31

EX-SITU PREPARATION OF COBALT NANOPARTICLES LOADED POLYANILINE FOR ORGANIC SPINTRONICS BASED SPIN-FIELD EFFECT TRANSISTOR

Priyanka Nemade (Dudhe)[1] and Kailash Nemade[2]
[1]Department of Chemistry, Jankidevi Bajaj College of Science, Wardha-442001, India
[2]Department of Physics, Indira Mahavidyalaya, Kalamb-445401, India
E-mail - *krnemade@gmail.com*

Organic spintronics is a next potential platform for future electronics due to excellent electrical and magnetic properties of organic semiconductors. Inspiring from the potential of

organic semiconductors, we planned to investigate magnetic properties of Cobalt Nanoparticles loaded Polyaniline for Spin-Field Effect Transistor (s-FET). e*x-situ* approach was adopted to prepare the Cobalt nanoparticles loaded polyaniline. The structural and morphological studies of Cobalt nanoparticles loaded polyaniline were completed using X-Ray Diffraction Analysis (XRD) and Scanning Electron Microscopy (SEM), respectively. Similarly, chemical purity was confirmed using Raman Spectroscopy. The magnetic properties of Cobalt nanoparticles loaded polyaniline was studied using superconducting quantum interference device (SQUID) technique. The most underlined achievement of present work is that our device satisfies the criteria of spin modulation at room temperature.

B-32

EXTRACELLULAR ALKALINE PROTEASES FROM SOIL HABITAT: THEIR PARTIAL OPTIMIZATION AND CHARACTERIZATION

A. S. Waghmare, V. D. Nanoty and U. K. Bhalekar
Department of Microbiology, Shri R.L.T. College of Science, Akola
E-mail - *ashoow22@gmail.com*

Enzymes are essential to life because they speed up metabolic mechanism. Alkaline proteases are those which have the pH range of 8 to 10 and mainly belong to bacterial origin. These are one of most widely used industrial enzyme and are easily extract from Soil microorganisms as compared to other sources, because of their rapid growth, and take limited space for their cultivation. Based on the morphological & biochemical characteristics the isolates were identified as *B.substilis, E.coli & P.aeruginosa*, which produced high concentration of protease enzyme on particular pH, temperature, carbon source, nitrogen source. Maximum enzyme activity (U/mole) was observed in medium at pH 9 in case of *E.coli 0.031, P.aeruginosa 0.029, B.substilis 0.029.*In case of temperature *E.coli* shows *0.044, B.substilis 0.048 at 37°C & P.aeruginosa 0.042* at 40°C.Among all used sources glucose was found to be the best carbon source as it shows maximum enzyme activity (U/mole) for *B.substilis 0.121, E.coli 0.026, P.aeruginosa 0.19*. Urea is best nitrogen source as it shows *0.204* for *B.substilis, 0.199* for *E.coli, 0.197* for *P.aeruginosa*.

B-33

HUMIDITY SENSING PROPERTIES OF ZnO/SnO_2 DOPED $BaTiO_3$ SCREEN PRINTED THICK FILM SENSOR

R. M. Agrawal
Department of Physics, Shri R.L.T. College of Science, Akola-444001 (MS), India
E-mail - *agrawal195@gmail.com*

In this paper ZnO and $BaTiO_3$nanoparticles was synthesized by a chemical precipitation method. Structural and compositional characterizations have been done by X-ray powder diffraction (XRD). Sensing material was made in the form of thick film. Surface morphologies of the samples were analyzed using Field Emission Scanning electron microscopy (FE-SEM) for thick film of different molecular weight ratio annealed at 600°C. Further, Water vapour or humidity sensing investigations of these sensing materials were done. Our result indicate that ZnO/SnO_2 doped $BaTiO_3$ in form of thick film for different molecular weight ratio was most sensitive for humidity in comparison to pristine material under same conditions. The hysteresis plot between increasing and decreasing the RH range of 30-90% Rh and vice versa. The samples resistance of

sample BZ-3 decreases $10^{10}\Omega$ to $10^{6}\Omega$ in comparison with the pristine materials. The similar change was also observed in sensitivity. The results were re-producible up to ±77% after 2 months of observations.

B-34

STUDY OF DC CONDUCTIVITY OF POLYANILINE DOPED ZINC OXIDE NANOCOMPOSITES

B. S. Agrawal[*1], R. M. Agrawal[2] and G. T. Lamdhade[1]
[1]Department of Physics, Vidya Bharati Mahavidyalaya, Amravati (MS), India
[2]Department of Physics, Shri R.L.T. College of Science, Akola (MS), India
E-mail - *bhavesh.agrawal0110@gmail.com*

Polyaniline doped Zinc Oxide (PANI-ZnO) Nanocomposites were synthesized by chemical route method. PANI-ZnO Nanocomposites were found crystalline in nature, confirmed by X-Ray Diffraction (XRD). The DC conductivity of PANI-ZnO Nanocomposites was found to be increasing with respect to the temperature with compared to the individual conductivity of PANI and ZnO.

B-35

EXPLOITATION OF ZINC OXIDE NANOPARTICLES AS HUMIDITY SENSORS

S. R. Samrutwar[*1], G. T. Lamdhade[1], R. M. Agrawal[2]
[1]Department of Physics, Vidya Bharati Mahavidyalaya, Amravati-444602 (MS), India
[2]Department of Physics, Shri R.L.T. College of Science, Akola (MS), India
E-mail - *samrutwar94sneha@gmail.com*

Zinc oxide nanoparticles were readily synthesized through sol-gel method. Zinc Acetate used as a precursor for preparation. In this present work, samples were prepared by spin coating technique in the form of thin films. The ZnO Nanoparticles were characterized by using X-Ray diffraction and humidity sensing, hysteresis characteristic, electrical dc conductivity, Arrhenius plot and activation energy of nanoparticles material studied.

B-36

PERFORMANCE ENHANCEMENT OF POTENTIOMETRIC INSTRUMENTATION BY EMPLOYING WIRELESS COMMUNICATION PROTOCOLS

Suchita Bhangale
Department of Electronic Science, Nowrosjee Wadia College, Pune-411001, India
E-mail - *spbhangale731@gmail.com*

Enhancement in some performance parameters of potentiometric instrumentation has been carried out with the help of wireless communication protocols. Some performance parameters of modern instrumentation like wireless user interface; digitization and smartness are enhanced in the present work. This is achieved with the help of digital wireless communication techniques. It includes cellular communication based long range Wi-Fi as well as short range low energy Bluetooth protocols. These protocols establish duplex communication between sensing unit of potentiometric instrumentation and handheld smart device for modernizing the instrumentation by enhancing parameters like remote access, digitization, smartness and sophistication. The presented work is useful to the new learners as well as to the electronic

engineer working in the field of electronic wireless communication. In future, authors would like to expand the work by enhancing some parameters of potentiometric instruments used in process control industry.

B-37

STUDY OF SnO_2 DOPED POLYPYRROLE NANOCOMPOSITES FOR AC CONDUCTIVITY AND DIELECTRIC PROPERTIES

T. S. Wasnik
Department of Physics, Vidya Bharati Mahavidyalaya, Amravati (MS)
E-mail - *tswasnik@rediffmail.com*

Nanocomposites of Polypyrrole and Stannic Oxide (SnO_2-PPy) were synthesized by in-situ polymerization in different weight percentages using oxidation method. The structural properties of prepared sample were studied by using X-ray diffraction. The surface Morphology of prepared sample were studied by field emission scanning electron micrograph (FE-SEM).The AC conductivity and Dielectric properties of SnO_2-PPy nanocomposite of various compositions were investigated at different temperatures and frequencies(100Hz–1MHz). It shows that the dielectric constant decreased with increase in frequency and temperature. As the concentration SnO_2 nano particles increases in PPy the AC conductivity increased with frequency. Activation energy for conduction has been also determined. Activation energy of PS3 (60 % ppy + 40 % SnO_2) was maximum among the samples and it is 0.1062 eV, it has increased with increase in frequency and SnO_2 nanoparticles concentration.

B-38

STUDY AC AND DC ELECTRICAL CONDUCTIVITYOF Al_2O_3 DOPED POLYANILINE

A. B. More, T. S. Wasnik* and G. T. Lamdhade*
Department of Physics, Vidya Bharati Mahavidyalaya, Amravati-444602 (MS), India
E-mail - *amolbmore007@gmail.com*

Polyaniline doped aluminium oxides (PANI-Al2O3) were synthesized by International union of pure applied chemistry method (IUPAC). The AC and DC conductivity of PANI-Al_2O_3 were studied and found to be increasing with respect to the temperature and frequency with compared to the individual conductivity of pristine samples and dielectric constant also studied.

B-39

COMPARATIVE STUDY OF ELECTRICAL CONDUCTIVITY OF PROTON POLYMER ELECTROLYTE WITH DIFFERENT NANOFILLER

B. H. Bhatti, R. V. Joat*, K. B. Raulkar* and G. T. Lamdhade*
Department of Physics, Vidya Bharati Mahavidyalaya, Amravati-444602 (MS), India
E-mail - *bhushanbhatti80@gmail.com*

Polyvinyl alcohol doped with Ammonium nitrate and aluminium oxide ($PVA+CH_3COONH_4+Al_2O_3$) were synthesized by Solution casting method. The comparatively study of AC, DC conductivity of ($PVA+CH_3COONH_4+Al_2O_3$) and $PVA+CH_3COONH_4+SiO_2$) were studied. It was found that, the conductivity is increasing with respect to the temperature and frequency with compared to the individual conductivity of pristine samples and dielectric constant also studied.

B-40

DEVELOPMENT OF MICROCONTROLLER BASED FULLY ROBUST FIRE SENSING AND PROTECTION SYSTEM

Siddharth K. Ganvir and G. K. Reddy
[1]Department of Electronics, Mahatma Fule Arts Commerce and Sitaramji Choudhary Science Mahavidyalaya, Warud, Dist.-Amravati (MS)
E-mail - *siddharthgnvr@ gmail.com, reddygk_2007@rediffmail.com*

Sensing and controlling system is having very vast applications in various fields. It used advanced technology such as embedded or Microcontroller based instruments. Now-a-days the cases of fire catching have been increased a lot. The places like Colleges, Hospitals, Marriage halls, go-downs are usually got prone to such fire incidences as per statistics. This paper proposed a model for fire sensing as well as to control that fire through a completely robust electronic system. This is able to detect the fire & take the preventive actions accordingly. This microcontroller based model consist of a temperature sensor, wireless trans-receiver module, automatic water pump system, GPS with GSM module for sending location and a help message to nearby fire brigade agencies and a physical rescuing outlets system.. This "Fully robust fire detection and protection electronic system" has been designed in such a manner referencing recent fire catch incidences in mind.

B-41

POTENTIOSTATICALLY SYNTHESIS AND CHARACTERIZATION OF POLYANILINE THIN FILMS

Prashant P. Gedam[1,2] and Mahendra D. Shirsat[2,3]
[1]Department of Physics, Shri R.L.T. College of Science, Akola (MS), India
[2]RUSA - Centre for Advanced Sensor Technology, Aurangabad (MS), India
[3]Department of Physics, Dr. B.A.M.U., Aurangabad (MS) India
E-mail - *mr.gprashant@gmail.com*

In the present investigation, we study the electrochemical behavior of polyaniline thin films (PANITFs) which is synthesized by cyclic voltametry on platinum working electrode in three electrode system. During deposition of PANITFs various process parameter viz. concentration of monomer, dopant and scan rate of the cycle were optimized. The surface morphology was characterized by scanning probe technique viz. Atomic Force Microscopy (AFM) shows the thin films of PANI were grown on platinum working electrode.

B-42

DEVELOPMENT OF AUTOMATIC DIPPER MECHANISM SYSTEM

C. R. Chaudhari and G. K. Reddy
Department of Electronics, Mahatma Fule Arts, Commerce and Sitaramji Choudhary Science Mahavidyalaya, Warud, Dist.-Amravati
E-mail - *itsmechandu04@gmail.com, reddygk_2007@rediffmail.com*

In our country percentage of accidents is increasing day by day. A major accident happens due to reflection of light on the eyes of the driver. Human eyes are very sensitive to the light. If eyes suddenly come in contact with the light, after darkness vision gets blank and requires

some time to recover the vision. Many times the situation comes when suddenly vehicle approaches from front or from side (L/R) with headlight in upper mode causes blindness to the eyes of the driver. During that time vehicle covers a blind distance and hence it leads to accident. This temporary blindness of eyes is called as glaring effect. Safety factor is always needed to be considered. One of the essential safety features is that need to be installed an automatic upper-dipper control system. This feature can mainly use during night time driving. This paper presents Automatic mechanism of Dipper in the Bike/Car. While driving a Bike/Car in the night many drivers do not use dipper the lamps of their vehicles in night. To overcome this manual dipping problem, an automatic mechanism has made to dip the headlight automatically whenever situation occurs.

B-43

SMART ROBOTIC ARM WITH RASPBERY PI

Nilanjan Chakraborty and Angkan Gayen
Department of Electronics Science, Fergusson College, Pune
E-mail - *nilanjanchakraborty4@gmail.com, angkangayen@gmail.com*

Automation and artificial intelligence have become one of the major areas of Research and Development which has made a drastic improvement in electronic science and computer science. This system is self-governed. Here in this paper we put forward the overview and mathematical aspects of robotic arm. The aim of this project is to allow the robot to grip and hold objects. Raspberry pi and other electronic circuits can be used to drive arm actuators by coding. This gadget has wide range of applications. Some are stated here- pick and drop, limiting human arm, drawing objects with programmed intelligence, throwing light-weight objects based on mathematically governed functions after designing and implanting, we can mount it to the mobile base so that it can get complete plane of locomotion. The human arm is considered to have rational ability mainly at shoulder, elbow and wrist. The actuators have to carry the load of the entire arm. In short, the robot redo analyzing errors from its previous attempts and improves in every successive attempt. The algorithms decide complexity of operation.

B-44

ARDUINO BASED CHARGING SYSTEM WITH CONTROLLED TIMING SPAN

Nilay Sen and Yash Vidyasagar
Department of Electronics Science, Fergusson College, Pune
E-mail - *nilaysen2011@gmail.com, yashvidyasagar@gmail.com*

Technology is the way through which we can achieve more than anything in recent times. With the advancement of time, technology is also on the race of rapid progress gradually. So, following the trend or more precisely technical trend, it is important to develop solutions to electronic or electrical drawbacks of our daily life.

Coming to the device, as the name suggests this particular equipment will limit the supply up to a certain time which will reduce overflow and also protects the internal circuits of other devices connected to the supply.

B-45

ON THE ASPECTS OF SET THEORY AND ITS DEVELOPMENTS

Ravindra P. Rewaskar[1] and Avinash J. Kamble[2]
[1]Shankarlal Khandelwal Arts, Science and Commerce College, Akola-444002 (MS)
[2]Pillai HOC College of Engineering and Technology, Rasayani-410207, Panvel (MS)
E-mail - *rv2r@rediffmail.com, avinashmath@yahoo.co.in*

Modern set theory formulated by George Cantor (1845-1918) is a fundamental for whole mathematics. Basically all mathematical concepts, methods, results are interpreted and represented within axiomatic set theory. It plays a vital role in foundations of modern mathematics. Fuzzy set is an extension and gross over simplification of classical sets, best understood in the context of set membership. Fuzzy set is a powerful mathematical tool for decision making dealing with uncertainties. In mathematics, a multiset is a modification of the concept of classical set. Multiset is obtained if the restrictions of distinctness on the nature of the objects forming a set are relaxed. In this work, we explore the concept of classical sets, its extended version, fuzzy sets and multisets.

B-46

HOME AUTOMATION VIA MOBILE PHONE CONNECTIVITY NETWORK USING DTMF SENSOR AND ARDUINO UNO

Paras Ukhalkar and Aarif Sheikh
Department of Electronic Science, Fergusson College, Pune
E-mail - *ukhalkarparas@gmail.com, 0101aarif@gmail.com*

'Where there is need there is search, and where there is necessity there is invention'.

Science is such a field of research that always serves to help of the mankind to make life easier. Electronics is one of the most important branches of the science that always plays a vital role in the research. But we know need is such a limitless concept. In these days, Home automation is used for convenient monitoring of real time parameters and for the same the wireless communication technique is necessary.

The scope of this paper includes the design and development of a low cost, efficient and reliable system for home automation using the DTMF sensor and microcontroller. To control the electronic gadgets using mobile phones, this system is very simple and easy to use i.e. user-friendly. The noteworthy feature of such system is that it can be used not only for authorized user but also the unauthorized one in specific conditions. In residential area there is a huge problem of electric energy wastage. To avoid this, approach of easy controlling of devices or home appliances through the use of wireless technology is quite an appropriate solution. Any mobile phone, not only smart-phones but also basic cell phone can be used to access and control the home appliances far away from the controller or the user.

B-47

PLANE SYMMETRIC SPACE TIME IN SCALAR TENSOR THEORY WITH WET DARK FLUID AND COSMOLOGICAL CONSTANT

V. D. Elkar[1], V. G. Mete[1] and Poonam P. Kadu[2]
Department of Mathematics, J.D. Patil Sangludkar Mahavidyalaya, Daryapur, Dist.-Amravati, India
[1]Department of Mathematics, R.D.I.K. and K.D. College, Badnera, Dist.-Amravati, India
E-mail - *vijayelkar@rediffmail.com, vmete5622@gmail.com, poonamkadu90@gmail.com*

In the present work we have investigated plane symmetric space time for wet dark fluid with time dependent cosmological constant term-Λ within the frame work of Saez-Ballester scalar tensor theory of gravitation. In order to obtain determinate solution of Einstein's field equations, we assume the equation of state $P_{WDF} = \gamma P_{WDF}$. The nature of the model is discussed in the presence of cosmological term-Λ. Some physical and geometrical aspects of the model are also discussed.

B-48

BLOOD CANCER (LEUKEMIA), NEW PENTOSTATIN ANALOGS DESIGN THROUGH BINDING AFFINITY CALCULATION

S. Giri[1], M. Hole[1], M. Reddy[2] and S. Ingle[1]
[1]P.G. Department of Bioinformatics, Shri Shivaji Science College, Amravati
[2]Aravinda Biosolutions Pvt. Ltd., Windsor Plaza, Shankermutt, Nallakunta, Hyderabad
E-mail - *bioinfo.sham@gmail.com*

Leukaemia is a cancer of blood-forming tissues also known as blood cancer. Now a day molecular modelling methods have been used for modelling a new molecule for blood cancer. Pentostatin is a drug that's already designed and used against many cancer conditions. This work provides a working drug of the developed software without much heavier and complex functions. The result of drug designing had great benefits to the whole bioinformatics community. For this work Pentostatine analogs is used to check binding activity against blood cancer. We use HYPERCHEM software for drawing of this drug and also used for modification of drug by replacing different functional groups like OH, CCl_2, CF_3, CH_2CH_3, CH_3, Cl, F, H, and NH_2 at R group position. Molecules designed as such are optimized using different algorithms and their affinity is checked with the protein. The binding free energy of the protein is calculated by performing docking process. The docking process is done with the help of GOLD software. The molecule with minimum binding energy will have the maximum binding affinity. From the results obtained it's clear that ligand "2(CCl_2, OH)" has the maximum binding affinity and this molecule is determined as the best lead molecule targets computationally.

B-49

COMPATIBLE UNIFORMITIES ON PSEUDOMETRIC SPACES

S. M. Padhye and Priti P. Umarkar
Department of Mathematics, Shri R.L.T. College of Science, Akola, Maharashtra, India
E-mail - *pritiu20@gmail.com*

In this paper we construct different uniformities on a pseudo metric space which are compatible with the topology of the pseudo metric space. It is proved that on a pseudo metric

space there may be unequal uniformities compatible with the topology out of which one is uniformly continuous uniformity while the other need not be.

B-50

AVOID DUPLICATED SPACE FOR SAME FILES SPECIALLY ON SOCIAL MEDIA

Ram B. Ghayalkar
Department of Computer Science, Shri R.L.T. College of Science, Akola
E-mail - *rambg29@gmail.com*

Now a day's everyone smart phone holder using with WhatsApp like social apps so plenty of images/videos/documents are stores every day in our mobile phones ultimately space gets reduces time to time and that is the biggest problem to manage these files. In this paper presents proposed solution to avoid this duplication of data for storing of memory space in mobile phones. Here presents a framework that will work on to avoid duplication of data.

B-51

EFFECT OF RATE OF DEPOSITION ON THE CHALCOGENIDE THIN FILMS

S. S. Kawar[1], S. V. Potdar[2] and V. S. Kalyamwar[3]
[1]Department of Physics, Dr. R.G. Rathod Arts and Science College, Murtizapur, Dist.-Akola
[2]Department of Physics, Sipna's College of Engineering and Technology, Amravati
[3]Department of Physics, Bhartiya Mahavidyalaya, Amravati
E-mail - *shashankkawar@rediffmail.com*

We deposited chalcogenide thin films, Copper Sulphide (CuS), Zinc Sulphide (ZnS) on different substrates by Chemical Bath Deposition Technique. Structural, Surface Morphology and Optical properties of as deposited films were investigated by XRD, SEM, FTIR and UV-VIS Spectrophotometer. The band gap is also calculated from the equation relating absorption co-efficient to wavelength. The band gap indicates the film is transmitting within the visible range and the band gaps changes because of the grain size of the films. We also observed that, the change in preparative parameters affects the deposition rate of thin films. From the observation, it is clear that the growth rate increases as the deposition temperature, deposition time, molarities of the solution increases. It is also clear that the growth rate increases as the film thickness and grain sizes increases while band gap decreases.

B-52

GENERALIZED HALF CANONICAL TRANSFORMS AND THEIR PROPERTIES

A. V. Joshi
Department of Mathematics, Shankarlal Khandelwal Arts, Commerce and Science College, Akola-444002
E-mail - *amolmaths_2011@rediffmail.com*

The important transform in the class of half linear canonical transform (HLCT). It has been used in several areas, including optical analysis and signal processing. For practical purpose half canonical transforms is more useful. Hence in this paper we have proved some important results for half canonical.

B-53

ON EQUINORMAL PROXIMITY SPACE AND UNIFORMLY CONTINUOUS UNIFORM SPACE

S. B. Tadam and S. M. Padhye
Department of Mathematics, Shri R.L.T. College of Science, Akola
E-mail - *sbtadam@rediffmail.com, rltmaths@rediffmail.com*

In this paper we obtain the characterization of uniformly continuous pseudo metric spaces in terms of the associated equinormal proximity spaces. The precise result is the following.
Theorem-A: If (X,d) is a pseudo metric space and $\delta = \delta(d)$ is the associated proximity on X, then (X,d) is uniformly continuous if and only if (X,δ) is equinormal proximity space.

We also characterize equinormality of proximity space associated with normal uniform space in terms of proximity of continuous mapping. Precisely the following is proved.
Theorem-B: If $(X,\mathcal{U})$ is a normal uniform space and δ is the associated proximity on X then (X,δ) is equinormal proximity space iff every continuous real valued function on X is a proximity mapping. Here the proximity δ_1 on $\mathbb{R}$ is defined as $A\delta_1 B \Leftrightarrow d(A,B) = \inf\{|x-y| : x \in A, y \in B=0$.

Also we obtain the sufficient conditions for a uniform space to define equinormal proximity. The precise results are as follows.
Theorem-C: Let $(X,\mathcal{U})$ be a uniform space and δ be the associated proximity on X. If for any two non empty disjoint closed sets at least one is compact, then (X,δ) is equinormal.

For a normal uniform space $(X,\mathcal{U})$ and the associated proximity δ, if $(X,\mathcal{U})$ is uniformly continuous space then (X,δ) is equinormal.

B-54

OVERUSE OF MOBILE IS HARMFUL FOR LOGICAL THINKING IN MATHEMATICS

Nita A. Ambulkar
Department of Mathematics, Shri R.L.T. College of Science, Akola
E-mail - *nitaambulkar@gmail.com*

In the modern era mobile is become an integral part of our lives. The number of mobile phone subscription is constantly increasing in every year. It is found that students use mobile phone too much due to its wide range of application. Thus, mobile phone is becoming an integral part of student to manage critical situation and maintaining the relationship that overuse of mobile affect on their mind and they cannot develop their mind to solve the problems that needs higher order thinking skills.

In this 21st century students are more depend on mobile phone which affect the psychology of the student this type of overuse of mobile is harmful for logical thinking in mathematics. This study helps student to aware and to know the side effect of mobile use on their further study a life. Also, to prevent harmful effect of mobile phone on the student's study. To suggest remedies for the student to improve their concentration and logical thinking this is helpful for every student. Overuse of mobile is affecting the logical thinking which most important in mathematical problem analysis.

Some infections are also due to the screen contact bacterial infection while stirring stair in different places like mall, temple in that place their also the infection bacteria are present in those

places. Casually we touch the stair in temple, pillars, doors in mall due to this activity the germs are viral the infectional bacteria or germs are viral or public it causes diseases. Like asthma brain tumor, ear hearing impairment heart problem.

Mobile devices give off harmful radiations which can contribute too many harmful diseases which is damage our brain our brain is not working properly as well as our thinking power goes on decreases.

B-55

HOLOGRAPHIC DARK ENERGY MODEL IN BRANS - DICKE THEORY OF GRAVITATION

V. P. Kadam

Department of Mathematics, Gopikabai Sitaram Gawande College, Umarkhed-445206, India

E-mail - *vpkadamgsg@gmail.com*

In this paper, we have investigated spatially homogeneous anisotropic Axially Symmetric universe filled with two minimally interacting fields, matter and holographic dark energy components in Brans-Dicke theory of gravitation. Exact solutions of field equations are obtained using the fact that scalar expansion is proportional to the shear scalar and constant deceleration parameter. Some physical and kinematical properties of the model are also discussed.

NCMRST-2020

Abstracts

Section-C

Sports, Library, Languages and Other

C-01

STUDY OF THE EFFECTIVENESS OF BLENDED LEARNING FOR GEOGRAPHY SUBJECT ON STUDENT'S ACHIEVEMENT

Jagruti Rohan Mahajani[1] and Hemant Yashwant Satpute[2]
[1]Geography Department, Fergusson College, Junior Wing, Pune-4,
[2]DOES, Fergusson College, Junior Wing, Pune-4
E-mail - *jagrutimahajani@gmail.com, hemant.satpute@fergusson.edu*

The information technology revolution has led to rapid expansion across a wide range of areas in the modern world. This has made it an essential requirement for schools, universities and other educational institutions to identify potential benefits from these changes so as to improve teaching and learning environments as well as cope with an ever increase demand for education and training. New internet bases education techniques have removed traditional place and time obstacles and have provided students access to information whenever and wherever they want (Murphy, 2003).

Blended learning is a new type of education prepared for a certain group by combining the positive aspects of different learning approaches. Blended learning will provide a big convenience for the course to achieve its target by combing the face to face interaction in traditional learning and time; place and material richness provided by web based learning.

Thus, blended learning is an education program (formal or informal) that combines online digital media with traditional classroom methods. It requires the physical presence of both teacher and student, with some element of student control over time, place, path, or pace. While students still attend "brick-and-mortar" schools with a teacher present, face-to-face classroom practices are combined with computer-mediated activities regarding content and delivery.

Present work narrates an experiment done in Geography Department, Fergusson College, Junior Wing, Pune-4, to study the effectiveness of Blended Learning for Geography subject on student's achievement.

C-02

DIGITAL LIBRARY : ROLE IN EDUCATION

Bharat R. Lokalwar
Librarian, Sharadchandra Arts, Science and Commerce College, Naigaon (Bz.), Dist.-Nanded
E-mail - *brloklwar@gmail.com*

It has been rightly said that "university/College is a community where scholars and teachers are head, students are the body and library its heart."Digital libraries are quite new-about 20 years age at the same time, they have been growing at a fast pace. Digital libraries have the following characteristics they Store, Preserve, distribute, Protect content and different formats at the same time. Over the centuries, libraries have been the Keepers and Distributors of books, Journals, Maps and Others materials that are used by students in the Learning process. Digital library Provide digital formats information Acquisition, Preservation, Display, Library operation, Digitization, etc tasks performed through it. Due to it Student/Teacher/Reader can prepare individual collection of information knowledge in large scale. User can get Unknown, Rare, Valuable, Important information. Digital library have no boundaries of time, place and language as well money and many users get same information at the same time.

C-03

THE ROLE OF ICT / E-LEARNING AND COMMUNICATION SKILLS IN SCIENCE

Jayesh Arjun Gajare
Shri S. N. Arts and U. K. Commerce College, AKOLA
E-mail - *jayeshagajare@gmail.com*

The advancement of science and technology contributed immensely in the well being of life. The services rendered through ICT are faster and more effective. UGC liberally contributes grants to university and affiliated colleges to install the ICT facilities and communication skills laboratory to generate digital environment. INFLIBNET is a good example. Researchers and teachers are greatly benefited by this.

Science which is based on cause and effect is greatly benefited by the use of language and modern tools. Effective communication in scientific language clarifies the concept in the mind of reader. Communication skills labs help the students from all branches, may it be arts, commerce and science. Various softwares are available in the market which helps one to understand the concept better. Easy accessibility of technology helps one to develop himself/herself. Students from science faculty can express themselves more effectively as their language gets better through the use of technology.

C-04

IMPORTANCE OF BIOMECHANICS IN SPORT

Ulhas V. Bramhe
Director of Physical Education, S.P.M. College, Chikhli, Dist.-Buldana, Maharashtra, India

During this study we will research about the term 'Biomechanics', we will explore its history, meaning and importance in sports. The significance of biomechanics as a feasible sub discipline of physical education is currently perceived for the change in the techniques of sport. Experts, Teachers, Coaches can take benefit by the study of biomechanics; they can enhance their techniques and comprehension by considering standards of biomechanics. It will give a superior comprehension of inside and outer strengths and the human body. They will have the capacity to comprehend things profoundly and can instruct and enhance accordingly and this will include more preformation in their preparation. It additionally gives scientific knowledge that can be used amid the practice or rivalry. In current time rivalries are exceptionally intense, so it is essential that the coaches must know that how to upgrade the abilities and give better performance of athletes with the assistance of new methods and types of equipment.

C-05

NEED OF BIOMECHANICS IN SPORTS

Kamini Mamarde
Director of Physical Education, Raje Chatrapati Kala Mahavidyalaya, Dhamangaon Badhe, Maharashtra, India
E-mail - *kamini.mamarde1111@gmail.com*

When coaches understand how forces work on muscles and affect motion in sports, they have a clear advantage over those who lack this knowledge and its applications. Athletes who know the basic concepts have a rationale for learning the correct way to execute skills. Knowing the reason behind learning a challenging technique gives them more motivation to master it. The

key to success is finding effective instructional cues that help the athlete achieve correct mechanical technique. Coaches with a command of mental training tools and sports training principles can help athletes make amazing things happen on the field. Anatomy and physiology lay the foundation for biomechanics and kinesiology, areas of study about human movement.

C-06

MOBILE PHOTOGRAPHY - NEW TRENDS IN HUMAN LIFESTYLE

Sushil M. Nagrale
Department of Zoology, Shri R.L.T. College of Science, Akola-444001 (MS), India
E-mail - *sushilnagrale_rlt@rediffmail.com*

In addition to Telephone calling, 20th century mobile phones support a variety of other facilities, such as text messaging, internet access, email, short range wireless communication (infrared, bluetooth), MMS, video gaming and digital photography. Mobile phones offering only those greatly advanced computing capabilities are referred to as Smart phone. They work as a computer but are mobile device small enough to fit in a user's hand. The camera technology on smartphone is more than adequate for taking photos and publishing them online. Along with the development of smart technology, photo boom is also rise due to the social media sites such as Facebook and Instagram. 660 billion photos were taken in 2013, 810 billion in 2014, 1 trillion in 2015 and 1.1 trillion in 2016. In 2017, more than 1.2 trillion photos were taken. Of the pictures taken in 2017, 85% were on smart phones, 10.3% were on digital cameras and 4.7% were on tablets. This work is an attempt to explore the use of smart phone for mobile photography with new trends in human lifestyle.

C-07

SPORTS AND HEALTHY LIFESTYLE

Sachin J. Kokode
Director of Physical Education and Sports, Shri Shivaji Science and Arts College, Chikhli, Dist.-Buldana (MS)
E-mail - *kokode.sachin4@gmail.com*

The number of factors influences the way in which sports impacts on health in different populations. Sport and physical activity in itself may not directly lead to benefits but, in combination with other factors, can promote healthy lifestyles. Elements that may be determinants on health include nutrition, intensity and type of physical activity, appropriate footwear and clothing, climate, injury, stress levels and sleep patterns. Sport and physical activity can make a substantial contribution to the well-being of people in developing countries. Exercise, physical activity and sport have long been used in the treatment and rehabilitation of communicable and non-communicable diseases. Physical activity for individuals is a strong means for the prevention of diseases and for nations is a cost-effective method to improve public health across populations.

C-08

INNOVATIVE TECHNOLOGIES TO IMPLEMENT FOR LIBRARY AUTOMATION

Jitendra R. Dange
Late Ku. Durga K. Banmeru Science College, Lonar-443302, Dist.-Buldana
E-mail - *jitdange12@gmail.com*

In the information and technology era, explosion of information are occur, the tremendous amount of information is being generated and transmitted from every corner of the world in the form of print materials, research articles, lectures, presentations video, conferencing, technical reports, standards and patents etc. In such condition automation of library with innovative technologies are very essential to fulfill the demand of users in minimum time period. The main aim of the proposed work is to highlights how the computer technology is used in the present scenario and how many libraries have been exaggerated with the advent of Information and Communication Technology based products & services and their priorities have been shifted to on ICT for instance library automation, digital archives and library services on mobile phone. The overall purpose is to share the resources using new technologies with the facilities available that would provide a variety of features to save time, promote community development and drive better services for the library users. There for innovative technologies are implement in library for library automation.

C-09

INNOVATIONS IN LIBRARY AUTOMATION AND INFORMATION SCIENCE

Priyanka S. Jaiswal[1] and Mangesh R. Ubale[2]
[1]Shri R.L.T College of Science, Akola
[2]Librarian, Shri R.L.T College of Science, Akola

The main purpose of this study is to assess self-estimated overall Information science and library automation. These same disruptive forces are acting on the academic library. Although many have called for a transformation in the library, there is a relatively minimal amount of discussion regarding what the transformation entails. Library automation, Information science is reference, articles, Journals, etc. It is also refers to use of computer to keep tracks of all the books that are added, issue, returned in library. Library automation is the part of management system in information technology era. This system ensure to handling proper book in library by the process of library automation.

Information Science is related to all discipline in knowledge branch such as social science, pure science. It is mostly related to library science. Library science is likely to information science. Information is useable. When use or process, new information is is generate by it. Information is generating in data, information, and knowledge. Information Science means processing of information. Library and Information science works like this. This paper states innovation of library automation and information science in all discipline.

C-10

SCIENCE AND TECHNOLOGY HELPS TO IMPROVE SPORTS SKILL

Rajesh D. Chandrawanshi
Director of Physical Education and Sports, Shri R.L.T. College of Science, Akola
E-mail - *rajeshchandrawanshi9@gmail.com*

The human body cannot function like a machine and it has its limitations. The performance of skill in any field and in activities of human body depends upon body structure, heredity, gender, age factors, weather, diet plan, guidance, training and coaching methods. Due to science and technology there have been tremendous changes in all areas of human life. Fitness is most important for performing higher level of sports skill. Speed, Stamina, Endurance, Flexibility, Muscular Power and Strength these concepts are included in fitness. Science and technology is very useful for analysis the lacuna in body movements and prepared latest sport's equipment to support sports skill performance. The purpose of this research is to know how science and technology helps to improve sports skills. On the basis of research study it is concluded that Science and Technology is useful to analysis the lacuna of body movements, to rectify the medical internal and external problems of body parts, performance base data analysis, correct judgment with help of latest equipments at the time of sports skills performance and to manufacture latest scientific equipments of various games and sports. Science and Technology is very much useful and helps to players for choosing perfect games and sports activity, sport's equipments, Sport's kit, training method, proper coaching, diet, medicine, to know level of fitness and how to perform higher level of sports skills.

C-11

ROLE OF YOGA AND SPORTS IN MODERN LIFE

Devendra Gawande
Smt. Salunkabai Raut Arts and Commerce College, Wanoja, Tq.-Mangrulpir, Dist.-Washim

The importance of yoga in modern life is abundant. Yoga teaches us the knowledge of how to lead a healthy living. It improves our concentration, creativity and sharpens our memory, another importance of yoga in modern life can be that yoga improves our muscle strength, stamina and bring immune and mental stability.

C-12

ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY IN MODERN LIFE AND ITS IMPORTANCE

Umesh Rathi
Arts and Science College, Kurha, Dist.-Amravati

ICTs stand for information and communication technologies and are defined, for the purposes of this primer, as a "diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information." These technologies include computers, the Internet, broadcasting and many more.

C-13

CONTRIBUTION OF ICT IN THE PROCESS OF LANGUAGE TEACHING AND LEARNING

Archana N. Deshmukh
Shri Shivaji College of Arts, Commerce and Science, Akola

The present paper casts the light on the ICT tools that helps in the development of English language teaching and learning. Technology plays a vital role in enhancing teaching and learning as well. It is affecting every aspect of education from teaching learning to assessment and evaluation. It helps to improve the effect of teaching and learning languages.In recent decades we have acknowledged that technology is occupying an important space in the sphere of education. The use of information and communication technology (ICT), adds a dimension to learning that was not previously available.The modern age is defined as the age of knowledge explosion with a single click, we can access a lot of information of the world with the help of ICT. In this age of science and technology no one can imagine education without ICT. 0nly with the help of ICT a large number of people can get education simultaneously and at low cost. It helps to save time, money and energy. ICT has made the process of teaching and learning more enjoyable and convenient. Students can learn with their own pace and convenience.

Language education is an area where open access resources, online courses, virtual classrooms and social networks based on ICT are being used effectively on a large scale. ICT enabled teachers adapt classroom activities and homework assignments as well. Language educators are able to expand language learning opportunities to all students with the help of technology.Its use is effective when it is used as a tool helping to teachers in the process of teaching. In language teaching and learning, teachers have many tools of technology, radio, TV, CD-ROM computers, internet, electronic dictionary, email, blogs, videos and DVDs and so on.The New era assigns new challenges and duties on the language teacher. Language learning and teaching is considered to be a complex process.To make the process easier, the recent development of the internet is of a great help.Nowadays ICT is playing a pivotal role to make the process more effective and productive. The tradition of English teaching has been changed with the help of technology. ICT has enhanced the teaching of English language.

C-14

FEATURES OF ACADEMIC LIBRARY WEBSITES: A REVIEW

Supriya A. Bejalwar
Librarian, Prof. Ram Meghe College of Engineering and Management, Badnera-Amravati
E-mail - *prmceamlibrary@gmail.com*

Academic Libraries use their websites for disseminating information among users and to show their presence by popularizing their services. A website of a library should reflect the vision and mission of the organization and library itself. For Libraries, website is the most effective way to make services available to the end user. The success of website depends on design, content, layout, alignment and also user friendly nature of website while accessing information. Like the physical library space, library collections, and library services, the library's website also needs updations and evaluations regularly so as to meet the specific need of the library users. This paper critically reviews literature to come out with the features of an ideal library website. This paper also acts as a guideline to Academic librarians to construct and maintain library website effectively.

C-15

THE ROLE OF ICT IN ENGLISH LANGUAGE TEACHING AND LEARNING

Namrata H. Mali
Shri Shivaji College of Arts, Commerce and Science, Akola

Development in Information and Communication Technology (ICT) has made significant impact on teaching learning process. English is an international language. In the world, most of the communication is done in English, as a medium of teaching. To acquire good communication skill in learner, he has to develop interest towards the language or subject. In this regard, the teacher plays an important role in attracting the learner's attention by creating interest among the learners. Language learning and teaching can be made easy by using well advanced teaching aids. Teaching and learning is also developed by new technology. In every aspect of human life, information and communication technology plays a vital role. ICT has influenced the lifestyle of humanity. ICT shows great impact on the learners. It makes learners innovative and also motivates them for learning. ICT has its noticeable impact on the quality of teaching learning process. The present paper highlights on the role of ICT tools that can help in the development of teaching and learning language and its effective use in the classroom.

C-16

DEVELOPMENT OF MICROCONTROLLER BASED FIRE AUTOMATION SYSTEM

Ruchika L. Paliwal[1], Leena S. Nanotkar[2] and G. K. Reddy[3]
Department of Electronics, Mahatma Fule Arts Commerce and Sitaramji Choudhary Science Mahavidyalaya, Warud, Dist.-Amravati
E-mail - *rlpaliwal2000@gmail.com, reddygk_2007@rediffmail.com*

Now a day's embedded technology play a vital role in Electronics industries. It has very vast applications. For that purpose it used microcontroller as a key role. By using microcontroller fire detecting system can be developed. In this paper authors used advanced microcontroller PIC16F72 for programming and controlling the system. Developed a system consist of electronic based mechanical system having DC motor, Relays, sensors etc. Authors is study various parameters of the system in which they studied sensitivity, accuracy, efficiency, range of sensors time required for achieve the target etc. developed system select the path, sense the fire and do the necessary action for further process. This system is very much helpful as a fire detector system and consecutive operation can be done with the help of this system.

C-17

ROLE OF EXERCISE IN WEIGHT MANAGEMENT

Sanjay K. Kale
Director of Physical Education, Shri Shivaji College of Arts, Commerce and Science, Akola-444005, Maharashtra
E-mail - *sanjay.kale@yahoo.co.in*

Exercise plays a very vital role in keeping human body in shape and healthy. Regular exercise boosts the overall immune system. It helps prevent the "diseases of affluence" such as heart disease, cardiovascular disease, Type 2 diabetes and obesity. It also improves mental health, helps prevent depression, helps to promote or maintain positive self esteem, and can even augment an individual's sex appeal or body image, which is also found to be linked with higher

levels of self esteem. Childhood obesity is a growing global concern and physical exercise may help decrease some of the effects of childhood and adult obesity. Health care providers often call exercise the "miracle" or "wonder" drug-alluding to the wide variety of proven benefits that it provides. Exercise helps to control your weight by using excess calories that otherwise would be stored as fat. Your body weight is regulated by the number of calories you eat and use each day. Everything you eat contains calories, and everything you do uses calories, including sleeping, breathing, and digesting food. Any physical activity in addition to what you normally does will use extra calories. Regular exercise is an important part of effective weight loss and weight maintenance. It also can help prevent several diseases and improve your overall health. It does not matter what type of physical activity you perform sports, planned exercise, household chores, yard work, or work-related tasks--all are beneficial. Whether you are trying to lose weight or maintain it, you should understand the important role of physical activity and include it in your lifestyle. The paper aims at exploring the complete processes and steps that play an important role in keeping human body fit and fine.

C-18

THE ROLE OF TECHNOLOGY IN TEACHING AND LEARNING ENGLISH LANGUAGE

Arun Khedkar

Department of Languages, Shri R.L.T. College of Science, Akola-444001 (MS), India

E-mail - *arunkhedkar1986@gmail.com*

20th century underwent a tremendous and unprecedented revolution in each and every sphere of life .Whether it is science , arts, literature, language, culture, or knowledge as a whole adding to the wealth of this planet which is Earth .Even education has become more dynamic, modern, pristine and more effective with the advancement in technology in it. In ancient times language was mostly taught and learnt with the traditional methods like imitation, observation, listening, reading and writing. However these techniques still have their prestigious place in inculcating effective language skills, especially the language like English which is a Global language .With the help of technology teaching and learning English has become easier than ever before. Many teachers prefer teaching English with the help of various technical tools as doing so they can save their time. The use of Language Labs, LCD, LED Projectors, smart phones, computers, laptops, translating machines, online and offline dictionaries, sound recorder, audio as well as video lectures, Technology significantly helps teacher to communicate his message far effectively, making learning English interesting as a international language. Learning English with DVDs, electronic dictionaries and T.V., radio appeals to all our senses as students learn better with the first hand experience .Teachers too find themselves at ease while they interact with students with the help of technology the benefit of learning English with technology is not only confined to classrooms only as you can learn anywhere and anytime making learning English more interesting for students. However students today have a lot of opportunities to practice English through social media, newspapers where they can find a variety of methods by using which language can be learnt which is not always possible within four walls. Unlike reading from the textbooks in a familiar way students use tablets for reading as they can carry it anywhere. What is most technology catches our attention and retains it to longer time.

C-19

IMPACT OF SPORT PHYSIOLOGY ON ATHLETE'S PERFORMANCE: REFERENCE TO PSYCHOLOGY

N. W. Deulkar
Director of Physical Education, Sudhakarrao Naik Arts and Umashankar Khetan Commerce College, Akola
E-mail - *nitinwd69@gmail.com*

In preparation and performance of an Athlete, psychology is one of the major entities of sport physiology which has been found to be given less attention or neglected. Hither to it is proved that psychic set up, spirit to reach the landmark was the most significant statistical link emerged in Olympics. Many established professionals have been agreed with the view that the Athletes' performance is significantly affected by the psychological factor. In the context of the parameters of psychological aspects of athletic performance, it is found that majority of scholarly discussion at the International conferences and seminars on sport psychology pertain to anxiety and aggression towards performance enhancement has become significant. In view of this underlying fact, the present paper attempted to study in detail the impact of psychological element in bringing about improved performance. It is also attempted to establish the fact that psychology is one the major significantly effective components of sport physiology. To achieve the desired objectives as mentioned above, the researcher, in the present research study, has gone through the varied sport theories of the professionals as well as the experts in sport science. The illustration and expert opinions are cited as per MLA style.

C-20

ENHANCING THE LANGUAGE SKILL IN ENGLISH WITH ICT

Nilima S. Tidke
Department of English, Shri Shivaji College of Arts, Commerce and Science, Akola

To teach English and develop English language skills, various approaches and methods are in use in our country. But most of them are traditional, less interesting, ineffective as well as less motivating. So, it is necessary to use modern approaches and tools of ICT (Information and Communication Technology) to develop better understanding and acquisition of basic skills i.e. LSRW (Listening, Speaking, Reading and Writing) of English language among the students . ICT has a lot of things to offer to both teachers and students for the enhancement of their vocabulary and improvement of English language skills. Now a day's ICT tools and approaches are being used widely due to their convenience, omnipresence, effectiveness and being economic. At present, there is a prime focus on the fields of knowledge in which citizens acquire the skills and knowledge necessary for effective communication, e.g. on the teaching of foreign languages and ICT. Probably, the most suitable approach to the teaching of foreign languages with the help of ICT, now a day's seems to be the so-called blended learning. With the emergence of ICT and the internet, we feel that our lives have changed fundamentally.

C-21

COMPARATIVE STUDY AMONG SPORTSPERSON AND NONE SPORTSPERSON IN PHYSICAL AND PSYCOLOGICAL ASPECT

Rakesh A. Badgujar
Director of Sports and Physical Education, Shri Gadge Maharaj Mahavidyalaya, Murtijapur, Dist.-Akola

The aim of the physical education is not out of common education it helps to overall development of child through physical activities. The training of psychological factors is very much important for the success of sports. Human being is considered as an intellectual animal that wants to participate in physical activities to attain personal achieve growth and development and to maintain good health. It is natural is both quality and a child to participate in activities like running, jumping, throwing etc., Sport is a dynamic, creative, continuous process which gives meaning to reflect and the values believe and ethics of participation.

C-22

RANGANATHAN'S FIVE LAWS AND ITS IMPACT TO THE TECHNOLOGICAL INNOVATIONS OF LIBRARY AND INFORMATION SCIENCES

Mangesh Ramesh Ubale
Shri R.L.T. College of Science, Akola

This paper analytically reviews the five basement laws appear in the field *of* Library and Information Science (LIS) that, introduced by Dr. S.R. Ranganathan, who was the first class Indian library scientist, and his laws theoretical impacts to the technological enhancements of the field of Library and Information Science (LIS). Technology transitions from conventional age to Digital age, and individual impacts on element of Ranganathan's laws for that were analytically revived throughout the available literature. Finally, concluded that, most of the technological innovations available at the field of Library and Information Science (LIs). Have based Ranganathan's five laws, and his five laws are still on live of the library and information science domain.

C-23

E- LEARNING AND E- SERVICES IN ACADEMIC LIBRARIES

Vishalsingh R. Shekhawat
Librarian, Vidya Bharati Mahavidyalaya, Amravati

This is an age of computer technology revolution for the future, not only will it be necessary for everyone to be computer literate will also be necessary for all to be occupied with computer skills. Of course, it is probably true to say that the growth of online learning and usage of e- services in college library is increasing rapidly. In addition, the impact of digitalization in the field of library, where through computer networks such as Internet has posed new challenges in education and online Library Services. The objective of this study is to provide overview of e-learning and e-services in library. Besides, present study also gives about pellucid e- learning tools and with the help of those tools it is required, for both the teacher and librarian, to re- evaluate their teaching methodology, services and resources.

NCMRST-2020

Abstracts

Section-D

Miscellaneous

D-01

DEVELOPING COMMUNICATION SKILLS EFFECTIVELY

Swati Dipak Damodare
Smt. L.R.T. College of Commerce, Akola-444001 (MS)
E-mail - *swatidamodare07@gmail.com*

Today communication skills in English have become an inseparable part and an equally important aspect while speaking and writing in our day to day life. It is significant in the same manner as education and other necessary commodities have become meaningful in our life. It is no longer a fashion symbol or matter of prestige, but it has an important role to play in all walks of life. No matter, if our mother tongue is Marathi or Hindi, we need to achieve command and mastery over the English language in order to grab better opportunities. To serve this purpose, some new methods of teaching and learning are to be adopted in the classroom so that students may find the process of learning not only easy but also interesting and effective to a great extent. The same is the purpose and objective behind writing this research article. The researcher is adopting and implementing the same techniques in the classroom among the students as described in the article, in order to yield better results, and to get positive response from the students. Listening, speaking, reading and writing are the four key skills for learning any language. Unfortunately, the writing skill has received unnecessary focus at the school and college level, and Listening is totally neglected at many stages in our life resulting in lack of vocabulary, incorrect construction of sentences, which ultimately establishes a language phobia among students. To overcome this problem and to boost the morale of the students, they have to be put in different situations and to enable them to speak without hesitation and fear. Let them commit mistakes, but we should let them come up with their views, ideas, and opinions in their own words. This is achieved through activity-based teaching where effective communication takes place in a real sense. This is the main objective and purpose behind writing the article.

D-02

ABC OF SPORTS AND EXERCISE SCIENCE

Sagar Pralhadrao Narkhede
Director of Physical Education and Sports, Saraswati Arts College, Dahihanda, Tq. Dist.-Akola
E-mail - *sagar_sports14@yahoo.co.in*

Sport science is a multi-disciplinary area involved with the information and enhancement of human sports overall performance. Sport technological knowledge may be concept of as a scientific technique used to guide the practice of recreation with the remaining goal of improving sports performance. It is about using the best to be had evidence at the proper time, in the right environment, for the proper character to improve their performance.

D-03

IMPORTANCE OF PLAYING SPORTS AND THEIR IMPACT ON CHILDREN

Anil A. Deshmukh
Prof. Rajabhau Deshmukh Kala Mahavidyalaya, Nandgaon (Khn.), Dist.-Amravati

Sport includes all forms of competitive physical activity or games which, through casual or organized participation, at least in part aim to use, maintain or improve physical ability and skills while providing enjoyment to participants, and in some cases, entertainment for spectators.

Hundreds of sports exist, from those between single contestants, through to those with hundreds of simultaneous participants, either in teams or competing as individuals. In certain sports such as racing, many contestants may compete, simultaneously or consecutively, with one winner; in others, the contest (a match) is between two sides, each attempting to exceed the other.

D-04

A CRITICAL STUDY OF EXERCISE SCIENCE WITH REFERENCE TO BIOMECHANICS

Ravindra Devidas Sawarkar
Late C.M. Kadhi Kala Mahavidyalaya, Achalpur-Camp, Dist.-Amravati

The present paper covers the subject of biomechanics as one of the important components of the study of the science of physiology in the context of exercise science. It is found that Biomechanics is a growing body of the study sport science in the age of advanced technology. The study of the movements of human body in the light of application of the laws of physics is itself increases the vital role of biomechanics to in the life of a sportsman.

D-05

SPORT SCIENCE AND EXERCISE SCIENCE

Sarjerao Rambhau Wagh
Director of Physical Education, N.N. College, Dusarbid, Dist.-Buldana

Sports science is that the application of scientific principles to exercise and sport. It's a rapidly expanding area and will open the door to a variety of jobs within the pharmaceutical, healthcare, fitness and leisure industries.

Sport and exercise science are often applied within a broad range of contexts. The most basic distinction which will be drawn is between its uses during a 'sport science' context versus its use in an 'exercise science' context.

D-06

THE ROLE OF ICT, E-LEARNING AND COMMUNICATION SKILLS IN HIGHER EDUCATION

Sangita Khare and Taresh P. Agashe
Ghulam Nabhi Azad Art, Commerce and Science College, Barshitakli, Dist.-Akola
E-mail - *sangeetakhare1982@gmail.com*

This paper attempts to highlights the role of ICT E-Learning and Communication Skills in higher education. The use of ICT e-Learning and Communication Skills leads itself to more students Centered. Communication is the expressing of an idea that may be verbal visual or vocal that is read perceived and heard by another person .The relationship between thoughts and expressive to the relationship between intent and content of a message.

E-learning is said to be a tool for social equity that is providing educational opportunities to all in respect of caste colour race while the promotion of access within a framework of economic development is a necessary condition for any contribution to social justice to come from ICT and E-learning through distance education. ICT helps facilities the transaction between producers and users by keeping the students updated and enhancing teacher capacity and ability

fostering a live contact between teacher and students through email, chalk session, e-learning, web-based leaning including internet, intranet, extranet, cd rom, tv audio.

A communication skill helps them to listen, understand the point of view of teacher in the class. After listing and understanding what teachers are speaking about, students can ask better question with confident and it will help them to gain more knowledge.

E-Learning is a type of teaching and learning that can be obtained by means of online technology. E-learning can involve a greater of equipments than online. Training or learning as the same implies on line involves using the internet or intra net. E-learning involves all type of electronic media by utilizing all the potentialities of information technology. The role ICT, e-learning, communication skills in education becoming more and more important and this importance will continue to grow and develop in the 21st century. Thu the paper suggests that ICT, communication skills, e-learning are not a technique for educational development but also a way of socio-economic development of the nation.

D-07

SOME THERAPEUTIC PLANT IN PATALKOT, TAMIA, CHHINDWARA DISTRICT, MADHYA-PRADESH

Omkar Bawistale and Brajesh Shau
Department of Botany, Govt. College, Sausar, Dist.-Chhindwara (MP)
Range officer of Chhindi (Patalkot), Tamia, Dist.-Chhindwara (MP)

Extensive ethnomedicinal survey was carried out to document the precious indigenous healthcare practices prevalent among the different ethnic groups of Patalkot, Tamia, Chhindwara District, Madhya Pradesh, India. These people belonging to primitive or aboriginal culture possess a good deal of information about medicinal utility of plant species. During the survey, it was noted that plant parts, used by the tribals to cure various diseases and disorders. Indigenous healthcare practices, provide low cost alternatives, where western healthcare services are not available or are too expensive. A list of plant species along with their parts used and the mode of administration for effective control in different ailments are given.

D-08

FIVE DIMENSIONAL PLANE SYMMETRIC MODIFIED HOLOGRAPHIC RICCI DARK ENERGY COSMOLOGICAL MODEL IN LYRA MANIFOLD

S. R. Bhoyar and K. R. Borgade*
Department of Mathematics, Phulsing Naik Mahavidyalaya, Pusad-445216, Maharashtra, India
Jagdishprasad Jhabarmal Tibrewala University, Jhunjhunu-333001, Rajasthan, India
E-mail - *sbhoyar68@yahoo.com, borgadekailas143@gmail.com*

This work explores the behavior of cosmological model in the presence of matter and a modified holographic Ricci dark energy for five dimensional plane symmetric space-time in the framework of Lyra (Math.Z.54, 52: 1951) manifold. The hybrid expansion law (Akarsu *et al*., JCAP, 01, 022 (2014)) has been used to get a determinate solution. The physical condition that is shear scalar proportional to the expansion scalar is used to obtain the solution of the field equations. We obtain many interesting realistic solutions governing the present day model of the universe. Some physical and kinematical properties of the models are discussed in detail.

D-09

NUCLEAR MAGNETIC RESONANCE: A POWERFUL TOOL TO STUDY *N* -GLYCOSIDES

Mamata T. Sangole and Sharayu M. Thorat
Department of Chemistry, Shri Shivaji College, Akola-444001 (MS), India
E-mail - *mamtasangole@rediffmail.com*

NMR has long been employed to determine the chemical structures and conformations of molecules. In the present study, a series of 2-phenylimino-3-aryl-4-*S*-benzyl-6-hepta-*O*-benzoyl-β-D-maltosylimino-2,3-dihydro-1,3,5-thiadiazines (hydrochloride) was designed and synthesized. Structure elucidation of the new synthesized compounds was attained by the use of ^{1}H NMR spectral study. ^{1}H NMR measurements were performed on a Bruker DRX- 300 (300 MHz FT NMR) NMR Spectrometer in $CDCl_3$ solution with TMS as internal reference. Compounds were also subjected to in vitro assessment for their antimicrobial activity.

D-10

VIRTUAL ECG USING BIOMEDICAL TOOLKIT

Anjali J. Deshmukh
Department of Electronics, Shri Shivaji College, Akola-444005, Maharashtra, India
E-mail - *deshmukhanjali63@gmail.com*

The state of cardiac heart is generally reflected in the shape of ECG waveform and heart rate. ECG if properly analyzed can provide information regarding various arrhythmia diseases related to heart. The use of advanced virtual instrumentation system based on National Instrument's Lab-VIEW software is much more helpful for the acquisition and study of different types of virtual electrocardiogram. Lab-VIEW provides a clear and easy-to-use method for obtaining, analyzing, and displaying the desired signal by tightly integrating hardware, software validation and reporting tools. Lab-VIEW by National Instruments consists of the most popular and powerful tools available and provides the best solution for rapidly developing and testing complex medical devices.

In the present work ECG signal for various cardiac abnormalities related sinus and non-sinus arrhythmias is simulated using National Instruments Lab-VIEW software's Biomedical Toolkit, which is helpful to improve study and enhance the understanding of theoretical knowledge.

D-11

STUDY OF DERIVATIVES AND INTEGRLS OF FRACTIONAL ORDER WITH THEIR APPLICATIONS

S. V. Nakade* and R. N. Ingle
Department of Mathematics, Sharda Mahavidyalaya, Parbhani, Maharashtra, India
Bahirji Smarak Mahavidyalaya, Basmatnagar, Maharashtra, India
E-mail - *santosh_nakade@yahoo.co.in*

In recent years Fractional order derivatives and Fractional order integrals (Fractional Calculus) is highly growing field in research because of its wide applicability and interdisciplinary approach. The main reason for the success of Fractional Calculus applications is that these new

fractional-order models are often more accurate than integer-order ones, i.e. there are more degrees of freedom in the fractional order model than in the corresponding classical calculus. In this article we study some special functions, various approaches of fractional calculus, Integral transform of some fractional approaches, and some applications of Fractional calculus.

D-12

REFRACTOMETRIC INDEX, DENSITY, MOLAR REFRACTION AND POLARIZABILITY CONSTANT OF SUBSTITUTED AMINOPYRIMIDINE IN DIFFERENT BINARY MIXTURE

M. M. Mhasal and A. M. Mopari
Department of Chemistry, Shri Shivaji College of Arts, Commerce and Science, Akola, India
E-mail - *monalikalaskar@gmail.com*

Refractive index measurement for the solution of four derivatives of 2-aminopyrimidine is done using Abbe's refractometer. The values of molar refraction and polarizability constant have been calculated from the data. The parameters and their varation tendencies have been expounded in terms of the interactions between solute and solvent.

D-13

RUBAN'S SCALAR TENSOR THEORIES OF GRAVITATION IN PERFECT FLUID

A. S. Nimkar, S. C. Wankhade and V. M. Wankhade
Shri Dr. R.G. Rathod Arts and Science College, Murtizapur, Dist.-Akola (MS), India
E-mail - *anilnimkar@gmail.com*

In this paper, we have obtained the field equation in the presence of Perfect fluid source in the scalar-tensor theories of gravitation proposed by Brans and Dicke and Saez - Ballester With the aid of Ruban's Space time. Exact cosmological models in both the theories are presented with the help of special law of variation proposed by Berman and relation between metric coefficients. Also some physical and kinematical properties of the model are studied.

D-14

ROLE OF CARBOHYADRATES, PROTEINS, LIPIDS AND NUCLEIC ACID IN LIVING ORGANISMS: A STUDY

Y. G. Thakre and Archana A. Dupare
Department of Home Science, Yeshwant Mahavidyalaya, Wardha-442001, Maharashtra
E-mail - *yogita_bd@rediffmail.com*

Carbohydrates, proteins, lipids and nucleic acid are four main categories of molecules found in living things. They are vital for live on earth and perform range of functions such as providing energy, structural support and cellular communication. Cell in human body require many compounds to survive. The main substances found in every cell are a combination of lipids, carbohydrates, nucleic acid and proteins. Each of these substances plays a different role in the body, and all of them must either come from the diet or to be manufactured from the diet or to be manufactured using other chemicals in the body. In this article, I have explained all these biomolecules as they are essential for living organisms.

D-15

TRADITIONAL FISHING METHODS IN WESTERN VIDARBHA REGION OF MAHARASHTRA

S. N. Tayade[1] and H. V. Wanjari[2]
[1]Department of Zoology, Late Pundalikrao Gawali Arts and Science Mahavidyalaya, Shirpur (Jain)
[2]R.A. Arts, Shri M.K. Commerce and Shri S.R. Rathi Science Mahavidyalaya, Washim
E-mail - *tayadesachinn@gmail.com*

Fish capturing is one of the oldest practice of mankind and fish has been also one of the most important food items of the human beings from the ancient time. In fact, the success of fisheries in a country depends on proper catch of its fish fauna. In India millions of people of fishermen community have been depending on fishing for their livelihood. In Maharashtra, some of the tribes are traditionally engaged in this occupation. These fishermen are broadly grouped as specialists or indigenous groups who depend completely on fish and other aquatic resources for their subsistence, subsistence fishers or opportunists who depend partly on fish and groups who have recently entered the fishing industry. The present paper reveals the description of some of the methods like Wapha, Daab and Ghug and their construction, installation, harvesting and catch.

D-16

STUDY ACOUSTICAL PARAMETERS OF TERNARY LIQUID MIXTURES OF ALCOHOL + TRIETYHYLAMINE + ACETIC ACID THROUGH ADIABATIC COMPRESSIBILITY AND EXCESS COMPRESSIBILITY

P. J. Thakare
Shri Shivaji Arts, Commerce and Science College, Akola, India
E-mail - *pallu10thakare@gmail.com*

Ultrasonic velocities, Densities and Viscosities are measured for ternary liquid mixture of Acetic acid and triethylamine (TEA) with ethanol. From this experimental data adiabatic compressibity and excess adiabatic compressibility have been calculated. The behaviour of mixture has been investigated at three different temperatures 303K, 308K and 313K for frequency 2Mz.

D-17

A STUDY ON ALTERNATIVE REAGENT FOR THE DETECTION OF ALCOHOLIC FUNCTIONAL GROUP

P. S. Pande and Vicky Sahu
Department of Chemistry, Shankarlal Khandelwal College, Akola-444002, Maharashtra, India
E-mail - *pandeprasanna25@gmail.com*

An alternative reagent for the detection of alcoholic functional group has been studied. A mixture of ceric Ammonium Nitrate with sulphuric acid is used as the reagent for the detection of alcoholic functional group. Six different alcohols have been screened against this reagent and all the alcohols gave positive results.

D-18

SOL-GEL SYNTHESIS AND PHOTOLUMINESCENCE CHARACTERISTICS OF $NaSr_4(BO_3)_3$ BLUE COLOUR EMITTING PHOSPHOR

Y. P. Manwar[1*], S. K. Tayade[2], R. S. Palaspagar[3] and R. P. Sonekar[4]
[1,2]Department of Physics, Shri R.L.T. College of Science, Akola-444001 (MS), India
[3]Department of Physics, S.M. College, Kelapur (Pkd.) (MS), India
[4]Department of Physics, G.S. College, Khamgaon, Dist.-Buldhana (MS), India
E-mail - *ypmanwar10@gmail.com*

Different concentrations of Ce^{3+} doped $NaSr_4(BO_3)_3$ phosphors were prepared by sol-gel method. The phase analysis has been carried out by X-ray diffraction studies. Fluorescence properties were investigated through emission, excitation. The PL and PLE spectra of composition optimized $Na_{1.98}Sr_4Ce_{0.02}(BO_3)_3$ phosphor have been studied. The phosphors exhibit bright blue emission under the excitation of 365 nm which can be attributed to the charge transfer transition of O^{2-}-Ce^{3+}, and the band centred at 365 nm between 300 nm to 400 nm due to the 5d–4f transition of Ce^{3+} ions. The characteristic emission peaks recorded at 434 nm. The concentration quenching of Ce^{3+} ions in $NaSr_4(BO_3)_3$ have also been investigated and it is seen that the optimum concentration of Ce^{3+} ions is 2 mol %.

D-19

SYNTHESIS AND FLUORESCENCE PROPERTIES OF Eu(III) DOPED $NaCaBO_3$ BY USING SOL-GEL METHOD

Y. P. Manwar[1*], S. K. Tayade[2], R. S. Palaspagar[3], R. P. Sonekar[4] and S. K. Omanwar[5]
[1,2]Department of Physics, Shri R.L.T. College of Science, Akola-444001 (MS), India
[3]Department of Physics, S.M. College, Kelapur (Pkd.) (MS), India
[4]Department of Physics, G.S. College, Khamgaon, Dist.-Buldhana (MS), India
[5]Department of Physics, S.G.B. Amravati University, Amravati-444602 (MS), India
E-mail - *ypmanwar10@gmail.com*

A series of mixed sodium-calcium borate phosphor $NaCaBO_3$ doped with Eu^{3+} ions was obtained by the sol-gel method. Crystal structure of the synthesized compound was analyzed by X-ray powder diffraction. Optimal conditions for the synthesis were found. The size and morphological characteristics of the annealed phosphors were investigated with a field emission scanning electron microscope (FE-SEM). The photoluminescence properties were evaluated with a spectrofluorometer. The phosphors were effectively excited by the light of 396 nm and showed intense red emission at 614 nm, which originated from the $^5D_0 \rightarrow {}^7F_2$ transition of Eu^{3+}.

D-20

SEASONAL VARIATIONS IN THE MYCOTIC INFECTIONS OF FISHES OF WADALI LAKE FROM AMRAVATI (MS)

G. D. Hande[1], N. V. Bhatkar[1] and D. V. Hande[2]
[1]P.G. Department of Zoology, Shri Shivaji Science College, Amravati (MS)
[2]P.G. Department of Botany, Shri Shivaji Science College, Amravati (MS)

In the present investigation *S. parasitica* and *A. niger* were found to be the most common water molds responsible for the fungal infections to fresh water fishes. *Saprolegnia* is found to be

more virulent for fishes. The infection of *Saprolegnia* on fishes is termed as "saprolegniasis". Initially the infection was in the form of small patches and in advance cases big lesions penetrated up to the muscles. Saprolegniasis is considered as a localized infection and not systemic infection. Generally it is an external infection and can be appeared any where over the body surface especially fins, eyes, gills and ulcerated area on the body. The clinical signs exhibited by the fishes due to *Achlya* infection were characterized by the presence of a brownish cotton wool like growth and small white patches on the head and fins of the affected fishes.

It was revealed that *Achlya hypogyna, Alternaria alternata, Aphanomyces invadans, Aspergillus flavus, Aspergillus niger, Cladosporium cladosporoides, Curvularia lunata, Drechslera hawaiinsis, Fusarium oxysporum, Mucor mucedo, Rhizopus stolonifer* and *Saprolegnia parasitica* were pathogenic to fish but *Saprolegnia parasitica* was more virulent. Among these Fungi *Achlya hypogyna* is reported only on *Clarias* species. The present study showed that *Aspergillus* sp and other Fungi could attack fish but the frequency of incidences of *Saprolegnia parasitica* infections was more. Fungi are most often secondary pathogens of fish already stressed by another disease, or fish with loss of scales due to mechanical damage allowing a site for the fungal growth. The fungus can spread rapidly among fish population and the fungal spores can be dispersed through the water currents.

D-21

EFFECT OF UV RADIATION ON THE DIELECTRIC CONSTANT OF SALICYLIC ACID DOPED THIN FILMS OF PS

S. G. Vidhale* and N. G. Belsare

Department of Physics, Dr. Sau. Kamaltai Gawai Institute of Engineering and Technology, Darapur, Dist.-Amravati

E-mail - *shilpavidhale20@gmail.com*

The thin films of PS, pure and doped with 1%, 3%, 5%, 7%, 9% salicylic acid (SA) were prepared by using isothermal evaporation technique .The measurement of dielectric constant (εr) for all above samples have been carried out within the temperature range 323k-363k and at frequencies in the range 1KHz-1MHz.The result reveal that the dielectric constant was strongly affected by the UV radiations. It has been observed that the value of dielectric constant decreases with increase in the exposure time of UV radiation. The sample was characterized by XRD, SEM and FTIR.

D-22

MACHINE LEARNING AND DEEP LEARNING (ML/DL) FOR SECURITY OF IOT SYSTEM FOR FACILITATING SECURE COMMUNICATION BETWEEN DEVICES TO SECURITY BASE-INTELLIGENT SYSTEM

Neehan Aeman

Department of Computer Science and IT, Shri Shivaji College, Akola

Internet of things (IOT) connects millions of devices together. Internet of things plays a very important role in enhancing various smart applications that can improve life. The multidisciplinary components have introduced new security challenges. The various security measures such as authentication, network security, encryption, etc. are ineffective now days. Machine learning and Deep learning (ML/DL) are powerful methods for data security. ML/DL is a powerful technique to learn the normal and abnormal behaviour of IOT ecosystem. This paper

focuses on Machine learning methodology for IOT system. The security phase provided by (ML/DL) Machine learning and Deep learning is also discussed in the paper. The Big Data issue is also been discussed in the paper.

D-23

DARK MATTER, DARK ENERGY AND COSMOLOGICAL MODEL

R. G. Deshmukh
Department of Physics, Shri Shivaji Arts, Commerce and Science College, Akola
E-mail - *radhikadeshmukh35@gmail.com*

A little under 14 billion years ago our universe wrinkled into existence in momentous event known as the Big Bang where previously there was nothing no matter, no energy, not even space and time.

Today the space of our universe is filled with invisible stuff matter which expanding under the action of gravity which was dark matter. In 1990's astronomical observation and theoretical calculation was leading astrophysicists to believe that not only the dark matter but also there is vacuum empty space filled in universe that is dark energy. It is suggested that the apparently disparate cosmological phenomenon attributed to so called "dark matter" and dark energy arise from quantum level of space-time itself. This creation of space-time results in metric expansion. A recent modification of Einstein's theory of general relativity by Chadwick, Hodgkinson and McDonald incorporate space-time expansion. Recent evidence predicts that apparent amount of dark matter increases with age of universe. In addition proposal leads to the same result for the small but non-vanishing cosmological constant, related to dark energy.

D-24

GREEN SYNTHESIS OF CARBON QUANTUM DOTS USING SALICYLIC ACID AND UREA

Waquas Ahmad[1], R. G. Korpe[2] and G. V. Korpe[1]
[1]Department of Chemistry, Shri Shivaji College of Arts, Commerce and Science, Akola-444001 (MS)
[2]Department of Physics, Shri Shivaji College of Arts, Commerce and Science, Akola-444001 (MS)
E-mail - *waquas18@gmail.com*

Carbon quantum dots (CQDs) are popular in the field of nanomaterials due to their various properties, including less toxicity, good compatibility and relatively easy surface modification. Carbon quantum dots have different applications as their photoluminiscence (PL) mechanism which can be tuned by altering pH, using different solvents, doping of metals or non-metals and also photoluminiscence properties are greatly affected by particle size of carbon quantum dots. We herein report the synthesis of Carbon quantum dots (CQDs) by using microwave irradiation from salicylic acid and urea which is an easy and less time consuming method. Doping of nitrogen in carbon quantum dots is studied which resulted in the photoluminiscence with a broad emission peak ranging from 494nm (blue) to 543nm (green) depending upon the different concentrations of urea. Different sets were prepared with varying concentration of urea and keeping amount of salicylic acid constant. The shift in emission wavelength was observed with different amounts of nitrogen from the varying concentration of its source urea.

D-25

MICROWAVE ASSISTED SYNTHESIS AND ANTIMICROBIAL STUDY OF 2-AZETIDINONE DERIVATIVES OF 4-CHLORO ETHYL BENZOATE

Smita Tarale
Shri Pundalik Maharaj Mahavidyalaya, Nandura, Dist.-Buldhana (MS), India
E-mail - *smita.tarale@gmail.com*

Non classical, high speed, one pot microwave method has attracted researchers for organic synthesis in recent years. Envionmentally benign, greener microwave irradiation method for preparation of 2-azetidinones is developed. In my present study a series of novel azetidinones are synthesised which involves hydrazinolysis of 4-chloro ethyl benzoate with 99% hydrazine hydrate in ethanol in microwave to yield the hydrazides. Then hydrazides are condensed with different substituted aryl aldehydes in DMSO in microwave oven to form respective Schiff base. Then formation of Schiff bases is followed by ring closure reaction with chloro acetyl chloride and triethyl amine in DMF to yield corresponding azetidinones. Structures of synthesised compounds were confirmed by IR, 1H NMR spectral analysis. Compounds are evaluated for their antimicrobial activities. The activities are due to cyclic carbonyl group in azetidinones. Some of the compounds have shown comparable antimicrobial activities against all the microbial strains.

D-26

SEED COAT STUDY AND PRELIMINARY PHYTOCHEMICAL ANALYSIS OF *TRACHYSPERMUM AMMI* (L.) SEEDS OF APIACEAE (UMBELLIFERAE)

P. P. Ulhe
Department of Botany, Narayanrao Kale Smruti Model College (Art, Commerce and Science), Karanja (Gh.), Dist.-Wardha
E-mail - *pallavi_ulhe27@rediffmail.com*

From the ancient period of time medicinal plant have great value because it gives remedies on different human diseases. The *Trachyspermum ammi* (L.) plant is highly medicinal. It is also known as 'Ajwain'. Ajwain seeds are important for preparation of various drugs. It's fruit like seeds. It contains useful phytochemical which is use in pharmaceutical industry. The seed also shows morphological and anatomical variations which is very helpful for identification of seed .The scanning electron microscope (SEM) view of seed shows micromorphological characters while seed coat study shows structural cellular variations. The qualitative analysis helps for detection of various chemical constituents which are helpful for drug preparation. The preliminary phytochemical analysis, protein test, carbohydrate test and lipid test, detection of amino acid through TLC method, detection of various secondary metabolites use for drug preparations. Seed contain various chemical constituents having high medicinal value. The study is essential for the identification of seeds, detection of various components in it for theruptic efficacy of seeds. So taxonomic identification, detection and analysis are most important for better research for drug preparation in pharmaceutical industry, various purposes and economic use also.

D-27

PHYTOCHEMICAL SCREENING AND EVALUATION OF ANTI-ARTHRITIC ACTIVITY OF LEAF EXTRACTS OF *DELONIX REGIA*

Ashwini A. Balode, Ozasvi Zadokar and Minal Kolhe
Department of Biochemistry, Shri Shivaji College, Akola
E-mail - *ashumorwal@gmail.com*

Arthritis is a characteristic chronic disease of the joints, cartilages and bones. It is a systemic autoimmune disorder in which there is an inflammation of synovial joint due to cellular response. Denaturation of protein is one of the well documented causes of inflammation and arthritis. The present study was undertaken to evaluate the phytochemical constituents and in vitro anti-arthritic activity of leaf extracts of Delonix regia. The crude powder of the leaves of the above plant was subjected to extraction with three different solvents in soxhlet extractor and further utilized for the study. The phytochemical analysis showed the presence of carbohydrates, tannin, saponins, alkaloids, flavonoids, phenols, glycosides and terpenoids. The ethyl acetate extract of Delonix regia maximally inhibited heat induced protein denaturation and may be one of the reasons of possessing anti-arthritic activity. The results indicate that the plant material may become an important source of natural drug compounds with health protective potential of significant impact on the status of human health.

D-28

MQTT BASED RASPBERRY PI HOME AUTOMATION SYSTEM

Mayur Thete, Nikita Pulate and Ranjana Ubale*
Department of Electronic Science, Fergusson College (Autonomous), Pune, Maharashtra, India
E-mail - *mayurthete4@gmail.com*

MQTT Protocol and installed local MQTT server on our Raspberry Pi for controlling the GPIO locally. But the drawback of local MQTT server is that we cannot control the GPIOs from anywhere in the world, it only provides services locally. But if this MQTT server is hosted on some cloud then any appliances connected to Raspberry Pi can be controlled globally. We will use Adafruit IO as MQTT broker to control an AC appliance connected to Raspberry Pi GPIO. Also check other IoT controlled Home Automation we will use SSH to access Raspberry Pi on the laptop. You can use VNC or Remote Desktop connection on the laptop, or can connect your Raspberry pi with a monitor. Learn about Raspberry Pi headlessly here without a monitor. Adafruit IO platform is used with Raspberry Pi as MQTT broker. As we have used Adafruit IO platform in Raspberry Pi. Just make an account on Adafruit IO platform and make a feed.

D-29

SMART ATTENDANCE SYSTEM USING BIO-METRIC IDENTIFIER WITH OLED DISPLAY

Freni Malviya, Paulami Nath and Panchsheela Kamble*
Department of Electronic Science, Fergusson College, Pune, Maharashtra, India
E-mail - *panchsheela.kamble@fergusson.edu*

In today's world of security personal identification has become more crucial with stringent unique identifiers in use, like used for usual security means of smart cards, passwords,

banking transactions etc.. The buzz word IoT (Internet of Thing) is emerging with more secure norms , in current scenario biometric identifiers are the most commonly used like the one is fingerprint recognition technique which is widely opted for personal identification. The paper proposes a smart attendance management system using biometrics. The portable, low cost, wireless electronic system can record attendance as well as stores all the data fetched on a SQL server database which can be future used as a reference for records. Use of Optical fingerprint sensor will do fingerprint detection and verification up to 1000 entries. Arduino UNO is used for primary testing which will be replaced by Raspberry pi which will make the system wireless. The resultant message will be displayed on an OLED display and a SQL server.

D-30

STUDY OF STRUCTURAL AND OPTICAL PROPERTIES OF PVA DOPED WITH $FeCl_3$

R. Risodkar[1*] and R. Joat[2]

[1]Department of Physics, R.A. Mahavidyalaya, Washim-444505

[2]Department of Physics, Vidyabharti Mahavidyalaya, Amravati-444602

E-mail - *rajrisodkar@gmail.com*

The polyvinyl alcohol (PVA) thin film added with different concentrations of Ferric chloride ($FeCl_3$) 5, 10, &15 weight% prepared by solution cast method has been investigated for Structural & Optical Properties. The structural investigation was done by using Fourier Transform Infrared Spectroscopy (FTIR). When PVA doped with $FeCl_3$ we found that (C= C) and (C–O) stretch the bond which shows that there is structural change that increases with dopant salt concentration. The absorbance and transmittance spectra have been recorded in the wavelength range of (320-620) nm in order to study the Optical Properties with UV-Vis which reveals that as salt concentration increases (CuO, $FeCl_3$) absorbance also increases.

D-31

ANALYTICAL SOLUTION OF THE STRESS-FOCUSING EFFECT IN FUNCTIONALLY GRADED HOLLOW SPHERE SUBJECTED TO ELECTROMAGNETIC OR γ- RAY PULSES

D. P. Deshmukh

Department of Physics, L.R.B Arts, Commerce and S.S. Bharti Science College, Arni, Yavatmal, India

E-mail - *dhananjaydeshmukh786@gmail.com*

This paper investigate the magneto-electro-thermo-elastic response of a functionally graded hollow sphere subjected to thermal sudden loading produced by known electromagnetic pulse, electric pulse, X-ray or γ- ray pulse of high energy. The solution of thermal stresses influenced by electric and magnetic field is obtained using finite integral transform technique. The numerical calculation is carried over the functionally graded which are obtained by using the infinitesimal theory of electro-magneto-elasticity subjected to subjected to the mechanical, magnetic and electric loading. Evaluated results show good agreement in the literature with those available. It is interesting to note that selecting a specific value of inhomogeneity parameter N can optimize the electro-magneto-elastic responses, which will be of particular importance in modern engineering designs.

D-32

COMBUSTION SYNTHESIS AND LUMINESCENCE OF RARE EARTH DOPED ORTHO-BORATE PHOSPHORS FOR LIGHTNING AND DISPLAY

K. K. Rathod, K. V. Bhakade and J. T. Ingle
Department of Physics, Government Vidarbha Institute of Science and Humanities, Amravati, India
E-mail - *jitendra.ingle@yahoo.com*

The rare earth activated inorganic borate host phosphors YBO_3:RE (RE=Eu^{3+},Tb^{3+}) has been prepared by a novel solution combustion technique. The synthesis is based on the self-propagated exothermic reaction between the fuel (Urea) and Oxidizer (Ammonium nitrate). The heat generated in reaction is utilized for combustion of ingredients. The photoluminescence study carried out under UV excitation. The phosphor YBO_3:$Eu^{3+}$and YBO_3:Tb^{3+} shows strong absorption in UV region and exhibits intense orange red and green emission upon excited by 254 nm UV light. The phosphor YBO_3 doped with Eu^{3+} and Tb^{3+} phosphor is commercially used for lighting and display applications.

D-33

DIVERSITY OF WALL LIZARDS IN BULDHANA TOWN (MS)

A. C. Thakur
Department of Zoology, Shri Shivaji Arts, Commerce and Science College, Motala

Lizards typically have feet and external ears. Vision, including color vision, is particularly well developed in most lizards, and most communicate with body language or bright colors on their bodies, as well as with pheromones. Buldhana is the westernmost district of Vidarbha region in Maharashtra, situated in the Tapi and Godavari basins Indian reptiles does not provide a basis for direct verification of the information presented. In this paper annotated checklist of wall lizards in Buldana Town (M.S.) is going to report. Wall lizards were abundant and conspicuous where found. Adults and sub adults were seen almost exclusively around large cover objects (piles of logs and rocks, especially the latter) in open areas, but juvenile lizards were seen most of-ten in lightly vegetated areas, particularly tall, thin grassland were found out in the open away from cover much more frequently than adults. We almost never saw wall lizards in forests.

D-34

XANES STUDY OF SOME COBALT (II) COMPLEXES OF ALDEHYDES

Jaishree Bhale[1], Mona Gupta[2], Pradeep Sharma[3] and A. Mishra[4]
[1]Shri Shivaji College of Arts, Commerce and Science, Akola (MS), India
[2]Maharaja Bhoj Govt. P.G. College, Dhar (MP), India
[3]Govt. Holkar Science College, Indore (MP), India
[4]School of Physics, DAVV, Indore (MP), India
E-mail - *bhalejaishree@gmail.com, mona_gupta123@rediffmail.com*

Two cobalt (II) complexes of schiff base ligands, L1 = (*p*-methoxy anilino)-*p*-methoxy phenyl acetonitrile and L2 = (*p*-methoxy anilino)-*p*-chloro phenyl acetonitrile have been prepared by the condensation of *p*-methoxybenzaldehyde and *p*-chloro-benzaldehyde with *p*-anisidine respectively. The mentioned ligands were used to prepare three cobalt (II) complexes [Co_2(*p*-Methoxy ben)(*p*-Ani)]$(NO_3)_2$ and [Co_2(*p*-Chloro ben)(*p*-Ani)]$(NO_3)_2$ respectively. X-ray k-Absorption Near Edge (XANES) spectra of these two complexes have been recorded at RRCAT (Raja Ramanna

Center for Advance Technology), Indore, MP, India by using Synchrotron radiation source. Various X-ray absorption parameters, e.g. chemical shift, edge-width and shift of the principal absorption maximum have been obtained with the help of XANES spectra. Data analysis program Athena and the computer software Origin 6.0 professional have been used to processed the obtained data. The results of the study have been reported in this paper.

D-35

STUDY OF BUTTERFLIES FROM OUTSKIRTS OF MANDEV FOREST UDYAN YAVATMAL DISTRICT-YAVATMAL, MAHARASHTRA

P. W. Chaudhari[1] and S. S. Gupta[2]

[1]Department of Zoology, Shri Vitthal Rukhmini Mahavidylaya, Sawana, Tq.-Mahagaon, Dist.-Yavatmal

[2]Department of Zoology, Amolakchand Mahavidyalaya, Yavatmal

Butterflies are wonderful, winged flowers of the animal kingdom, which belongs to class insect. Butterflies are undoubtedly the masterpiece of nature, without butterflies we can't imagine the world. To achieve conservation of floral diversity presence of Butterflies plays vital role in an ecosystem as pollinating agent.

Present study was carried out from Mandev forest Udyan which is surrounded mainly by dense forest and quite rich in angiosperm flora with many important plants.

For present study, a check list was made comprising a total number of 19 Species belonging to 15 genera from 5 families. During this study Butterflies were observed from September to February 2017 for consecutive 6 months.

D-36

SPORTS SCIENCE AND SPORT SCIENTIST

Firoz Ansari

S. G. B. Amravati University, Amravati

Sport science applies the study of science to sporting activities. The focus of sport science is to assist maximise performance and endurance in preparation for events and competitions while lessening the danger of injury. It's used to help identify strengths and weaknesses so that a training program can be individualised for everyone from athletes to the elderly, and everyone in-between. Sports Scientists make sure that athletes are up so far with current training protocols, testing, and preparation.

D-37

ROLE OF BAT GUANO IN BIOREMEDIATION OF AQUATIC ECOSYSTEM

C. M. Bharambe[1], Manohar Narkhede[1] and Devshree Sonowane[2]

[1]Department of Zoology, Vidnyan Mahavidyalaya, Malkapur, Dist.-Buldana (MS)

[2]Department of Zoology, M.J. College, Jalgaon

The word guano originated from the Quichua language of the Inca civilization and means "the droppings of bat". The bats forage at night for insects over a particular area, and they return to the old temples during the day to sleep and care for their young. They attach themselves to ceiling, and their excrement accumulates on the floor below. In some situations the guano can reach a depth of feet in many years and appeared as guano-hip, and it has a valuable importance.

Bat guano was collected from the temple of Lonar crater of Lonar, Buldana District, Maharashtra. The bat guano, it dissolved in water of Purna River, (10:100) concentration was prepared and kept undisturbed till 30 days and parameters was noted at an interval of 2 hour and thereafter 5 days for about 24 hours and 30 days respectively. Resulted into increasing in pH and decline in chloride, nitrate, phosphate and sulphate content of industrial effluent after the addition of bat guano. Our investigation results indicated that bat guano used for degradation of water pollutants and bioremediation of aquatic ecosystem.

D-38

A REVIEW OF THE GRAPHENE A WONDER MATERIAL IN THE FIELD OF VISION/NANOPARTICLES COMPOSITES SYNTHESIS AND APPLICATIONS

Rohan K. Shirsat

Department of Physics, Shankarlal Khandelwal Arts, Science and Commerce College, Akola (MS)

E-mail - *rohanshirsat333@gmail.com*

The advancement of graphene/nanoparticles composites materials is at present the issue of enormous research intrigue. Graphene sheets have surface deformities and oxygen useful gatherings, which make them perfect layouts for combination of semiconductor and metal nanoparticles. To date graphene have made a colossal research interests due to its brilliant electronic, optical, mechanical, and warm properties, graphene has indicated incredible guarantees in a wide scope of uses, for example, photovoltaic application, vitality stockpiling gadgets, photograph synergist hydrogen advancement, and gas detecting application. Upgraded properties are normal in these graphene/nanoparticles composites, which emerge from the synergic impact of the graphene sheets tied down nanoparticles. Right now, strategies for combination of graphene/nanoparticles composites have been talked about. In spite of the fact that, graphene/semiconductor nanoparticles composites, in fields of photovoltaic, vitality stockpiling, Photo reactant hydrogen development and gas detecting applications have been considered.

श्री रा.ल.तो. विज्ञान महाविद्यालय सेवकांची सहकारी पत संस्था मर्या., अकोला

रजि.नं. अेकेएल/बी.एन.के.-१२३

श्री. माधव अंभोरे — अध्यक्ष
श्री. के.एस. शेगोकार — उपाध्यक्ष
श्री. सी.व्ही. अहिरकर — सचिव

■ **कार्यकारिणी सदस्य** ■

श्री. एम.आर. आमले • श्री. वाय.पी. मनवर • श्री. जे.टी. जाधव
श्री. ए.आर. अग्रवाल • श्री. एस.आर. कोहचाळे
व्यवस्थापक : श्री. आर.बी. चोंडके

The Berar General Education Society's

- N.M. Chaudhari Vidyalaya, Akola
- Sitabai Arts, Commerce & Science College, Akola
- Shri Kisanlal Nathmal Goenka Arts & Commerce College, Karanja Lad
- Smt. Laxmibai Radhakisan Toshniwal College of Commerce, Akola
- Shri Radhakisan Laxminarayan Toshniwal College of Science, Akola
- Jankibai Chaudhari Digital English School, Akola
- Shri Nathmal Goenka Law College, Akola
- BGES Science Academy, Akola

With Best Compliments From...

EPSON EXCEED YOUR VISION · BenQ · CASIO · LG Life's Good · Panasonic ideas for life

BOXLIGHT · BARCO · ViewSonic See the difference · vivitek · Canon · 4K ULTRA HD · 3D · DLP A TEXAS INSTRUMENTS TECHNOLOGY · 3LCD · LED

Multimedia Projectors

BRIO TOUCH Experience The Simplicity · BOXLIGHT Presenting a Better Way

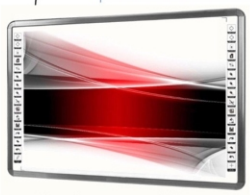
Total Teaching Solution

DIGITECH SYSTEMS

Your Presentation & Office Automation Solution Provider

An ISO 9001:2015 Certified Company

Raptor HiteVision



Interactive Whiteboard

visualiser expert

Raptor

Voice Amplifier

Interactive Panel

Digital Copier & Printer

SHARP · EPSON · Canon

Xerox Machine

Projection Screen
Tripod
Wall Mount
Motorised

Cables

Writing Boards

Miracast Dongle

PPT Presenter

Home Theatre System

BOSE Better sound through research. · SONY make.believe · YAMAHA · JBL HARMAN · marantz

Panasonic
ideas for life
Video Conference
HD

Smart TV
Curved TV

Lectren Podium

Raptor

Central Cooling System

AC

Solar Inverter

UPS / Battery
Ongrid / Offgrid
Online UPS
Constant Voltage Stabilizer

Library Management

Jyoti Chemporium, Alsi Plots,
Akola 444001, Maharashtra
Ph : 9850261814 **Cell : 9850061815**

GeM Government eMarketplace

Cell 2 : 9850261814
Email : jcakola@gmail.com
web : www.digiakl.com

Crisil Rated ☀ 5 Star JD Rating ☀ Gold Certified GeM Seller ☀ Presence on all Online Media