



The Berar General Education Society's

SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)



World Creativity and Innovation Day
2022

*On this Innovation day,
I wish you Develop your own Vision. Vision is the Specialty of
Seeing the Imperceptible*





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World Creativity and Innovation Day
2022

Dr. Poonam T. Agrawal
Assistant Professor & Head
Shri R. L. T. College of Science
Akola

Edited by
Dr. Kavita M. Heda
Assistant Professor
Shri R. L. T. College of Science
Akola

Dr. Ashish G. Sarap
Assistant Professor
Shri R. L. T. College of Science
Akola





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

I am Extremely pleased to present the Third issue of the creativity and Innovation Magazine going to be publish by Shri R. L. T. College of Science, Akola. exclusively meant for churning out the talent which bears immense potentiality of sharpening your innovative idea I congratulate all the contributors and the editorial board for bringing out such a beautiful magazine.

It will help the reader and contributor to update their knowledge and will give good exposure to recent development of innovative idea in science and technology. I am confident that this magazine will prove excellent platform to student who are interest in various competition like avishkar and all



Dr. P. T. Agrawal
Head
Department of Chemistry
Shri R. L. T. College of
Science Akola

This is the first issue of the creativity and Innovation Magazine going to be publish by Shri R. L. T. College of Science, Akola.

The aim of the magazine is to provide the platform for the students to publish creativity and Innovation Present in their mind.

As we believe that creativity and Innovations has no limitations of any subject, any languages, creative ideas and Innovations in all disciplines are welcome for the publication in this magazine. We are sure that our magazine will provide creative ideas and Innovations of new generations that will continue to help everyone interested in Research Field. We again hope that the magazine gives rise to Novel Research and many patents come forward through this playform. The help provided by our students is appreciable.

We would like to thank Management, Principal, Teaching and Non teaching staff members for their support towards this magazine. Dr. V. D. Nanoty, Principal, Shri R. L. T. College of Science Akola



Content:-

Sr. No.	Name of Student	Topic	Page No
1.	Mr. Dipesh K. Sharma	Dual – Ion Hybrid Energy Storage System	01
2	Ms. Ankita Devidas Sardar	Bird Water feeder	02
3	Ms. Ashwini Sunil Fate	How to Reduce Body Heat Using Natural Remedies	03
4	Mr. Dhiraj Prakash Agrawal	Homemade Remedies For Asthma	04
5	Ku Madhuri P. Shegaonkar	Homemade Natural DIY Lipstick	05
6	Ms. Durga Shivaji Bawaskar	Natural Cockroach Repellent	06
7	Ms. Gayatri Prakash Dhande	Homemade Face Pack For Glowing Skin	07
8	Ms. Harsha Sadharam Gwalani	Homemade Disinfectant Spray	08
9	Ms. Sneha Gadge	Homemade Disinfectant Spray	09
10	Ms. Dewyani Ganesh Shrinath	Make your own pH (acid/base) indicator	10
11	Ms. Bhagyashri Sanjay Kale	Homemade Neem Oil Shampoo	11
12	Ms. Sanjivani Surendra Chaudhari	River cleaning boat from waste material	12
13	Ms. Vaishnavi Girdhar Honale	Nitrile Gloves	13
14	Ms. Isha Dipak Bhagwatkar	Homemade cucumber night cream for face and body	14
15	Ms. RenukaNandu Gondhalekar	Homemade cucumber night cream for face and body	15
16	Ms. Nikita Somnath Bawane	How to Make Red Cabbage pH Paper	16



Sr. No.	Name of Student	Topic	Page No
17	Ms. Revati Subhashrao Deshmukh	Homemade Weight Loss Protein Powder	
18	Ms. Sneha Arjun Wahurwagh	Ayurvedic Facemask	
19	Ms. Swati Vishwanath Hage	Home made Cocoa Butter & Rose Water Body Lotions	
20	Ms. Vaishali Panjabrao Charate	Homemade kasha yam for Cold, Cough, Throat pain & Fever	
21	Ms. Akanksha . S. Dongre.	How to make a projector.	
22	Ms. Ambika Mirjamle .	Herbal Homemade Alovera Soap.	
23	Ms. Rajshri Gajanan Raut	Bath Salts (Scented and Colored)	
24	Ms. Divyani Nandkishor Harne	Home Made Liquid Detergent From Soapnuts	
25	Ms. Shivani shyam Tripathi	Home Made Liquid Detergent From Soapnuts	
26	Ms. .Anushri Jalamkar	Home Made Liquid Detergent From Soapnuts	
27	Ms. Priya R.Raut	Homemade floor cleaner	
28	Ms. Dipika B. Joshi	Homemade floor cleaner	
29	Mr. Nikhil Vishnu Sharma	Dealing with microplastic with homemade remedies	
30	Ms. Poonam Naswale	Paper plate or Plastic Plate	
31	Ms. Prajkta Santosh Varma	Homemade Vaccum cleaner [Best out of waste]	
32	Ms. Ritika .P. Kaithwas	Reuse Of Candy Wrappers	
33	Ms. Samiksha .S. Dongre	Tesla coil at home	



Mr. Dipesh K. Sharma

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-

dipesh90014@gmail.com



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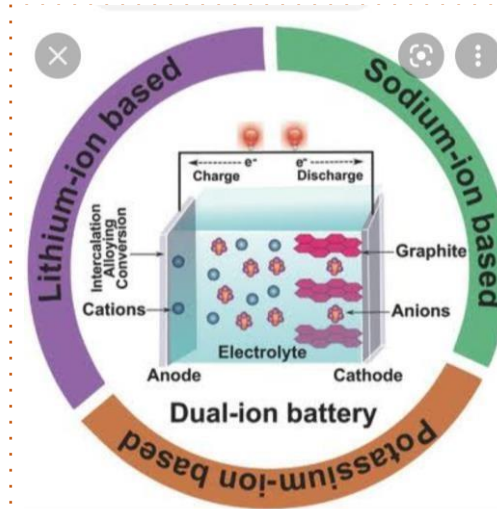
❖ DUAL - ION HYBRID ENERGY STORAGE SYSTEM

Introduction: Supercapacitors that store energy through dual electrochemical layer capacitance or surface faradaic redox reaction are characterized by their fast charging/discharging capability, high power densities, and long cycling lifetime. However, the low energy density of supercapacitors seriously inhibits their practical applications. Herein, a dual-ion hybrid energy storage system using expanded graphite (EG) as the anion-intercalation supercapacitor-type cathode and graphite as the cation intercalation battery-type anode is designed for efficient energy storage. The Si anode, synthesized by interfacial adhesion between nanosilicon and graphite with the help of pitch, demonstrates high specific capacity, remarkable cycling stability, and enhanced rate capability. Meanwhile, the EG cathode, which stores energy based on electrochemical double layer capacitance through its unique faradaic pseudocapacitive negative anion intercalation behavior, demonstrates high energy densities. The resulting Si/C/EG hybrid system delivered highly attractive energy densities, which superior to those of conventional electrochemical double layer capacitors and lithium-ion capacitors, making the dual-ion hybrid system a new type of energy storage device capable of achieving fast and efficient energy storage.

Requirements: The average alkaline AAA, AA, C, D, 9-volt or battery is made of steel and a mix of graphite, with remaining balance made up of paper and plastic. Being non-toxic materials, all of these battery ingredients are conveniently recyclable.

Advantages: 1] High working potential. 2] Eco-friendly, low cost.

Disadvantages: Inferior reversibility due to electrolyte decomposition and graphite exfoliation.





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Ms. Ankita Devidas
Sardar

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-

adsardar99@gmail.com

❖ Bird Water feeder

Procedure:- Steps by Step Guide for Making Hanging Bird Water feeder

Required Materials :- Plier, Wooden board, Bottle, Wires, Screw and bolt, plastic saucer, Glue gun, Drill machine

1. Glue Bottle Cap with Plastic Saucer. Paste the bottle cap in the middle of a plastic saucer using a glue gun, as shown in the image
2. Make a Hole:- Make a hole at the center of a bottle cap and saucer with a drill machine. Then insert a screw and bolt them together.
3. Fix a Wooden Board on Saucer :- Using a glue gun, fix a wooden board at the bottom of the plastic saucer.
4. Drill Holes on the Bottle :- Drill three holes at the neck of a plastic bottle. These holes will leak water into the saucer gradually.
5. Make a Handle for Bird Water Feeder :- To make the bottle suspendable, tie its bottom with a wire using a plier as shown in the image.
6. Filling Water :- Fill water in the bottle and screw it in the cap that was glued to the saucer in step one.
7. Hanging Bird Water Feeder is Ready :- Put the bottle upside along with the saucer. Since water drips in a limited amount here, there will not be any wastage
8. Hang it on a Tree :- The bird water feeder is ready to use. Hang it on a tree or a pole to make it more accessible to birds





Ms. Ashwini Sunil
Fate

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-

[ashwinifate1@gmail.co
m](mailto:ashwinifate1@gmail.com)



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❖ How to Reduce Body Heat Using Natural Remedies

- 1) **Buttermilk** :- According to Ayurveda, buttermilk is the best homoremedy to Reduce body heat. It can also be helpful for women who suffer from hot flashes and men who have the high metabolic rate.
- 2) **Cool Water remedy** :- It helps to reduce body heat. Cool water also helps the body recover fast from the side effects of heats As soon as you notice a rise in body temperature, beverage a tall glass of Cool water.
- 3) **Coconut Water** :- Coconut water is one more remedy to help cure heat exhaustion. Its electrolyte composition is outstanding for rehydration the body. Plus, it is loaded with nutrients that help lift your vigor. Drink a glass of tender Coconut water a few times everyday.
- 4) **Lemon** :- Regular use of lemon can preserve the body cool and prevent heat-related illnesses. The high vitamin-c in lemon can help lower body heat. It also hydrates and oxygenates the body to keep you feeling energized and refreshed during the hot summer days.
- 5) **Sandalwood remedy** :- Sandalwood can positively reduce increased body heat. Combine 2 table spoons of Sandalwood powder with enough water or cold milk to make a fine use.





Mr. Dhiraj Prakash
Agrawal

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-

agrawaldhiraj123gmail.
com



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❖ Homemade Remedies For Asthma

What Is Asthma? ->Asthma is a chronic lung disease characterized by a decreased ability to breathe easily. The flow of air in and out of the lungs is obstructed in the airways that carry air to the air sacs deep inside the lungs. The larger airways (**Bronchi**), branches into smaller airways (**Bronchioles**), which may be obstructed by tightening of muscles, irritation or swelling in the airways, and accumulation of mucous, thereby resulting in asthma. Asthma can either be acute or chronic. Symptoms associated with asthma are coughing, wheezing, shortness of breath, and chest tightness. Some natural remedies may be able to ease your symptoms, reduce the amount of medication you need to take, and generally improve the quality of your life. These remedies work best when taken alongside your usual prescribed asthma medications.

What are the benefits of natural drink on asthma?

- **Garlic** has several health benefits, including **anti-inflammatory** properties, asthma is an inflammatory disease, garlic may be able to help relieve your symptoms.
- **Ginger** is another herb that contains anti-inflammatory properties and may help with severe asthma. help clear mucus from bronchial tubes.
- Improvement in cough severity Boosts the **immune system**..

Ingredients: Water 2 Cups, Honey, Cinnamon Powder, 8 to 10 Cloves Garlic, Milk 2 Cups, Figs(Anjeer), Fenugreek Seeds(Menthee), Ginger etc.

To make natural remedies for asthma at home, follow these few tips & steps

- **Tip 1:**Mix 1 tsp of honey with ½ tsp of cinnamon powder. Consume the mixture just before sleeping to treat asthma symptoms.
- **Tip 2:**Boil 8-10 cloves of garlic in ½ cup of milk. Have it at night, as it is good for the early stages of asthma.
- **Tip 3:**Figs are good for draining phlegm. Wash 3-4 dry figs with water. Soak in 1 cup of water. Eat these on an empty stomach and drink the water that the figs were soaked in also. Do not eat anything else for an hour at least. Do this for 2 months.
- **Tip 4:**Add 1 tsp of honey in very hot water and sip slowly. Take this just before bedtime to remove phlegm from the throat.
- **Tip 5:**In 1 cup of water soak 1 tsp of fenugreek seeds overnight. Strain. Add 1 tsp of ginger juice and 1 tsp of honey to the strained water. This should be taken in the morning and evening. To control asthma in small amounts



Home Remedies
for Asthma



Ku Madhuri P.
Shegaonkar

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-



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❖ Homemade Natural DIY Lipstick

The conventional lipsticks can be used to harmful chemicals like lead and paraben. It is sensitive to lips and the area of mouth. These chemicals can easily be absorbed. These toxic substances give the allergy and skin damages, do you know these chemicals in beauty products and these products cause hormonal imbalance, the main reason for obesity and a lot of other health issues remain these days.

Beeswax, Shea Butter, lavender oil, cosmetic container, cold pressed coconut oil, Red food color or Beetroot powder

- 1. Beeswax:** 1 table spoon beeswax- beeswax is created by melting a honey comb with boiling water or starning and cooling it
- 2. Shea Butter:** It is very thick and solid at room temperature but has buttery rich consistency that makes it ideally used for the natural eye cream, lip balm and even body butter, shea butter is super food for skin that comes from seeds from shea butter tree protection from sun rays and provide the skin with fatty acids and nutrients necessary to collision products as well moisturizers and smoothen to skin. Shea butter just more than moisturizing it delivers. Skin anti-inflammatory and anti-aging components brightening to skin
- Coconut oil:** 1 tea spoon extra virgin cold pressed coconut oil
- Red food color:** ¼ tea spoon of beetroot powder
- Lavender oil:** 2-3 drops

Procedure:

1. Melt the Beeswax, shea butter and coconut oil in double boiler. The bowl of hot of boiling water make sure the bowl top doesn't touch the hot water beneath it
2. Once it all melted and comes together take out of flame and then cool down.
3. Then add a couple a drops of red food color or beetroot powder use only bowl a naturally food color and then add 2 drops of lavender oil.
4. Creates a smooth lipstick and heavy moisturizing and protective on your skin it is made up of completely natural ingredients mixed well, but still to pour the cosmetic container and then cool them ½ and hour stored in cool place, until in soften.





Ms. Durga Shivaji
Bawaskar

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-
durgabswaskar11@gmail.com



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❖ Natural Cockroach Repellent

Requirements :- Bayleaves, Mint essential oil, tea tree oil, Cucumber, water etc

Procedure :-

- Place bay leaves in closets and cabinets
- Mix 25 drops mint essential oil in 1 cup of water and spray under kitchen cabinets cracks and around doors
- Rub tea tree oil on shelves and end of cucumber until shrived
- Sprinkle diatomaceous earth in cracks and holders





Ms. Gayatri Prakash
Dhande

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-
gayatridhande99@gmail.com



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❖ Homemade Face Pack For Glowing Skin

Ingredient – honey and milk cream

Procedure

1. Take the honey and milk cream in bowl mix both ingredients until you have a thick consistency.
2. Use brush or (your fingers) to spread the mask on your skin and let it sit for 15 minutes.
3. Wash it off with cold water and pat dry.
4. Follow up with a toner and moisturizer as it makes your skin summer ready.

(Benefits – Hydrating your skin and glowing)





Ms. Harsha
Sadhuram Gwalani

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-
gwalaniharsha@gmail.com



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❖ Homemade Disinfectant Spray

As we are surrounded by various microbial pathogens which may cause severe illness or diseases to us. So it is necessary to disinfect our surrounding to prevent the transmission of diseases. Here is a homemade disinfectant spray which consists of basic ingredients which are easily available in market.

Ingredients: - Neem and Tulsi leaves, water, hydrogen peroxide, glycerin (optional), spirit

Procedure:-1. Take Neem and Tulsi leaves up to 60-70 gm.

2. Take 600 ml water in a bowl and add this leaves to it.
3. Boil the water till it gets half in its quantity.
4. So we get 300 ml Tulsi and Neem extract, filter it with the help of strainer.
5. Now add 25 ml of hydrogen peroxide to the solution
6. Add 30 ml glycerin (optional) and 500ml spirit (25% alcohol). Stir it to combine.
7. Transfer the solution to spray bottle. Now it's ready to use.





Ms. Sneha Gadge

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-
shehagadge16@gmail.com



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❖ Homemade Disinfectant Spray

Ingredients :-

Oils & vinegars

2 cups Apple cider vinegar

Beer, wine & spirits

1 cup Rose petals, dried

Apple cider vinegar provides exceptional relief for sunburns and this infusion technique just steps it up to a whole other level. If you have found this post and look like a lobster, you will want to grab the apple cider vinegar right out of the bottle, right now, and apply it. When you've recovered from this sunburn, give this project a try because infusing your ap...

Procedure :- Place the rose petals in a clean, quart-sized jar — 1 cup dried rose petals or 2) cups fresh rose petals. Cover in apple cider vinegar (about 2 cups).

3) Cover with a plastic lid. Vinegar reacts with metal. (Alternatively, use a metal canning jar lid my line it with plastic wrap. This will minimize the reaction.) Give the petals a swish. Place in a cool, dark place for a...few weeks (or a few months), giving them a swish daily if you remember (or as often as you do manage to remember). Strain out the rose petals and retain the infused vinegar....

Treating your sunburned skin First, dilute your vinegar solution with water, about four parts water to one part vinegar. If you have a sunburn or heat rash, you will likely be amazed at...at how quickly it soothes your skin....





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(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)



Ms. Dewyani Ganesh
Shrinath

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-
shehagadge16@gmail.com

❖ Make your own pH (acid/base) indicator

Introduction : the term acid and base describe chemical characteristics of many substances that we use daily .e.g soap and detergents,almost all food we eat from bread to coffee are slightly acidic .pH scale is a measure of acidity .you can buy pH indicator paper from any biological lab supply compony.or we can also make our own pH indicator which is use to give you acidic / basic quality of substance you want to test.

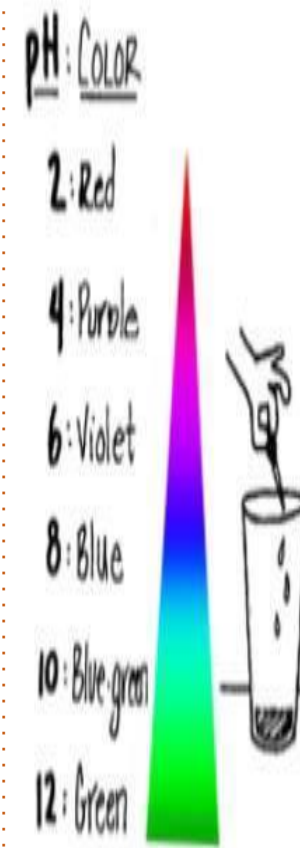
Ingredients: red cabbage juse , food processor or electric blender ect.

Procedure: 1) Bled 2 cups chopped red cabbage leaves and 1 cup water in a food processor or electric blender until pieses are tiny and uniform .strain the liquid .you can also chop the cabbage coarsely & boil it in a water for about 5 min until liquid is dark purple.

2) this purple liquid will change colour according to acidity or alkalinity of substances you want to test .

3) add about 10 drops of cabbage juse to approximately 1 tablespoon of a test substance .what colour does cabbage juce turn in an acid like white vinegar? What about in a base such as baking soda solution ?

4) test the pH of various substances and develop a corresponding color- PH scale compaire your results with the chart here





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Ms. Bhagyashri
Sanjay Kale

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-
bkale973@gmail.com

❖ Homemade Neem Oil Shampoo

Introduction :- Neem oil is something amazing for treating scalp conditions and hair problems. It is medicinal in nature and contains many healing nutrients. Here are some of the scalp & hair benefits of neem oil :• scalp fungal infections, Relieves scalp itchiness ,get rid of dandruff •Soothes scalp inflammation•Treats scalp acne, •Promotes hair growth •Kills lice •Makes hair soft and silky

Ingredients: • cup liquid castile soap •¼ cup coconut milk •3 tbsp rose water •1 tbsp neem oil •10 drops lavender essential oil •10 drops geranium essential oil •Funnel •Jar or any sealable container for storage

Directions: 1)Into a jar, bottle or any sealable container transfer ¼ cup of liquid castile soap, ¼ cup of coconut milk, 3 tbsp of rose water and 1 tbsp of neem oil with the help of a funnel.

2)Remove the funnel and carefully add 10 drops of lavender essential oil and 10 drops of geranium essential oil.

3)Now seal the container tightly and shake gently to combine everything. Store in the refrigerator.

4) use, pour 1-2 tbsp of your homemade shampoo into a non-breakable bowl (you can let it warm up at room temperature if it's too cold) and take it to the shower with you.

5)Lather it on your whole scalp and hair. You can let it rest for 5 minutes while you lather up the rest of your body. Rinse off with tepid water.

6)Coconut milk is so conditioning already so you can skip out conditioner. Or, apply a leave in conditioner like my [Green Tea Leave-in Conditioner](#) to keep your hair hydrated, silky, soft and shiny.





Ms. Sanjivani
Surendra Chaudhari

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-
sanjivanichaudhari116
[99@gmail.com](mailto:sanjivanichaudhari11699@gmail.com)



The Berar General Education Society's

SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)

❖ River cleaning boat from waste material

Introduction

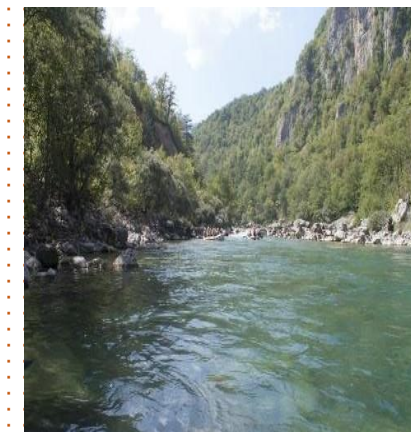
- 1) Most of our drinking water comes from rivers, lakes and surface water from other sources.
- 2) It is crucial to look after our river systems and protect them from pollution to we want them to keep on flowing to our taps.

Requirements

12v,3.7v battery, 2 wheels, Arduino Uno, 2LED, 4 gear motor, jumper wire, sunboard sheets, switch button, pvc pipe, 4 bottle, belt.

Procedure :

- 1) Fixed a waste bottle on sunboard sheets.
- 2) By using PVC pipe make a converse belt.
- 3) Make this converse belt with sunboard sheets and belt.
- 4) Connect the battery with Arduino Uno, motor, bluetooth, motor drive, and jumper wire.
- 5) Attach wheels for moving this boat on ground.
- 6) Attach switch button on it
- 7) When the switch is on the belt is moving and along this polythene, cloth, waste material is moving inside the boat.
- 8) Or we can use jRobot control app for control this boat on mobile.
- 9) So other than with switch board we can control this boat by using mobile app.





Ms. Vaishnavi
Girdhar Honale

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-
vaishnavihonale02@gm
ail.com



The Berar General Education Society's

SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)

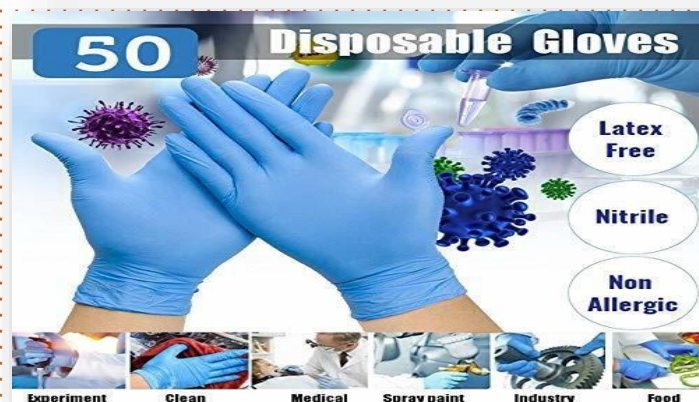
❖ Nitrile Gloves

Introduction :- These gloves are used as an alternative to latex gloves, but they are still Designed to be used only one time and disposed of afterwards to avoid The possibility of contaminating whatever it is you are working with Because nitrile gloves are single use it raised concerns about their Eco friendliness especially in the midst of a global be used and disposed of in environment

Creating synthetic Materials

Nitrile gloves are using a material called Nitrile butadiene rubber (NBR) this substance is a copolymer derived from the bonding of two molecules Acrylonitrile and butadiene these molecules are specifically Important for the performance and quality of the gloves acrylonitrile enhance chemical resistance and butadiene creates flexibility and Tear resistance. On the other hand vinyl gloves are manufactured from Polyvinyl chloride the same material used in PVC pipes vinyl

Gloves are created from pvc monomers alone which Makes the material a polymer a substance with a molecular Structure consisting entirely of a large number of similar bonded Units. To create the synthetic material Add a plasticizer to the pvc this makes the material flexible Otherwise the pvc would be rigid as it is when used to from pipe





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❖ Homemade cucumber night cream for face and body

Requirements:- Cucumbers, Alovera gel, coconut oil or Vaseline, Vit. E capsule

Procedure:-

- 1) Grate your washed cucumber.
- 2) Now strain your grated cucumber.
- 3) Add some Alovera gel into a mixing bowl.
- 4) Add cucumber juice and mix it well.
- 5) Add coconut oil or Vaseline.
- 6) Mix and then go ahead and melt.
- 7) Set it aside for it to cool down.
- 8) Add one capsule of Vitamin E.



Ms. Isha Dipak
Bhagwatkar

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-
ishabhagwatkar99@g
mail.com



The Berar General Education Society's SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

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❖ Homemade cucumber night cream for face and body

Introduction

- Soilless Cultivation generally refers to any method of growing plants without soil as a rooting medium.

Need of Soilless Cultivation

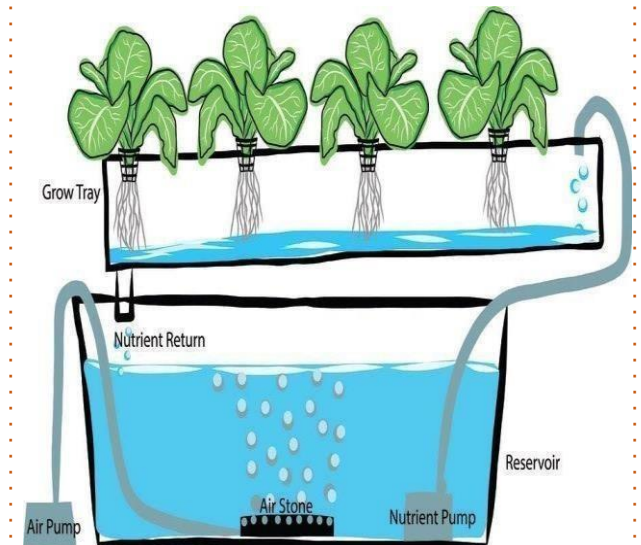
- Ensuring Food Security for the Increasing Population.
- Depletion of Resources for Traditional Farming. Soilless Farming

Hydroponics

- Definition: Hydroponics is a method for growing plants in a water-based, nutrient-rich solution.
- Methods: In this method, the root system is supported using inert medium such as perlite, clay pellets, peat moss or vermiculite.
- The main purpose is to provide access to oxygen which is essential for proper growth.

Advantages:

- Land and Water Efficient.
- Lower Resource Consumption.
- Higher Yield



Ms. Renuka Nandu
Gondhalekar

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-
renukagondhalekar1996@gmail.com.



The Berar General Education Society's

SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)



Ms. Nikita Somnath
Bawane

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-
nikitabawane7799@g
mail.com.

❖ How to Make Red Cabbage pH Paper

- The pigment that gives red or purple cabbage its deep colour is a natural pH indicator.
- We can crush the cells of the cabbage to release the pigment and use it to make pH test strips. The test strips are made of coffee filters or paper towels.
- Cabbage juice changes to red in the presence of an acid (pH less than 7), is blue at neutral pH (pH around 7), and is purple in the presence of a base (pH greater than 7).

Requirements:- Basically, we need a red cabbage (or purple cabbage), some form of porous paper, and a means of cutting and heating the vegetable.

- Red Cabbage , Filter Paper or Coffee Filters , Blender – optional, Microwave – optional, Dropper or Toothpicks - optional

Procedure:-

Cut a red cabbage (or purple) into pieces such that it will fit into a blender. Chop the cabbage, adding the minimum amount of water needed to blend it (because we want the juice as concentrated as possible). If we don't have a blender, then use a vegetable grater or chop your cabbage using a knife.

Microwave the cabbage until it's [at the boiling point](#). We'll see the liquid boil or else steam rising from the cabbage. If we don't have a microwave, soak the cabbage in a small volume [of boiling water](#) or else heat the cabbage using another method. Allow the cabbage to cool (about 10 minutes). Filter the liquid from the cabbage through a filter paper or coffee filter. It should be deeply coloured. Soak a filter paper or coffee filter in this liquid. Allow it to dry. Cut dry coloured paper into test strips. Use a dropper or toothpick to apply a little liquid to a test strip. The colour range for acids and bases will depend on the particular plant. We can construct a [chart of pH and colours](#) using liquids with a [known pH](#) so that we can then test unknowns. Examples of acids include hydrochloric acid (HCl), vinegar, and lemon juice. Examples of bases include sodium or potassium hydroxide (NaOH or KOH) and [baking soda](#) solution. We can use cabbage pH paper to tell if something is an acid, a base, or neutral, but we can't get highly specific pH readings like we would using a pH meter. If the liquid you are testing is very deeply coloured, we can dilute it with water without altering its pH value. Another way to use your pH paper is as a colour-change paper. We can draw on pH paper using a toothpick or cotton swab that has been dipped in an acid or base.





Ms. Revati
Subhashrao
Deshmukh

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-
revatideshmukh66@g
mail. com.



The Berar General Education Society's

SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)

❖ **Homemade Weight Loss Protein Powder:-**

Requirements:- -1 cup almond / badam, ½ cup walnut / akhrot, ¼ cup pistachios, ¼ cup cashew / kaju, 2 tbsp pumpkin seeds, 2 tbsp melon seeds, 2 tbsp sunflower seeds, ½ cup oats, 2 tbsp chia seeds, ½ cup milk powder.

- Procedure:-**
- 1) firstly , dry roast 1 cup almond until it turns aromatic.
 - 2) in the same pan take ½ cup walnut, ¼ cup pistachios and ¼ cup cashew.
 - 3) roast on low flame until the nuts turn crunchy.
 - 4) further take 2 tbsp pumpkin seeds, 2 tbsp melon seeds and 2 tbsp sunflower seeds.
 - 5) roast until the seeds turn crunchy.
 - 6) now roast ½ cup oats until it turns crisp.
 - 7) transfer the roasted oats to the same plate and cool completely.
 - 8) add 2 tbsp chia seeds and mix well-combining everything well.
 - 9) transfer to a mixi and blend to a fine powder.
 - 10) protein powder is ready to use.



How to use:- once the milk turns warm, add 3 tbsp of prepared protein powder and mix well.

How to store:- store in an airtight container and use up to 2 months.

Tip:- Make in small quantity.

Benefits:- If you're trying to lose weight or manage your weight, extra protein from shakes may help you feel less hungry, help you maintain muscle and metabolism, and lower the likelihood of regaining the lost fat, especially when combined with an exercise routine.



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❖ Ayurvedic Facemask

Introduction :- A facemask can give a spa-like treatment as it can help to relax the skin and keep it calm. Application of the face pack is a healing process that re-energizes and revitalizes the skin. It helps in deep cleansing the skin. Most importantly, a face pack helps in unclogging your pores. It penetrates deep inside the pores and pushes out the dirt to the surface along with the dead skin cells. It hydrates the skin. It helps in reducing excess growth of hairs on face. It is effective for reducing the dark spots, pimples, acnes, tanning etc.

Ingredients : Liquorice (Yashtimadhu), Chironji, Fennel seeds, Asperagus racemosus (Shatavari), Roscaea purpurea (Kakoli), Leptadenia reticulate (Jivanti), Crepidium acuminatum (Jeevak), Acorus calamus (Rushbhak), Milk/Rose water etc.

Procedure :

- 1) Take above contents except milk and rose water and grind it and convert it into powder form.
- 2) All contents should be in equal measure approx. 1 teaspoon for all contents
- 3) Add milk or rose water according to your skin type i.e. for oily skin, use rose water and for dry skin use milk.
- 4) Prepare a paste of these ingredients and apply it on your face evenly.
- 5) Allow it to dry for 10-15 minutes.
- 6) Wash your face with normal water



Ms. Sneha Arjun
Wahurwagh

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-
Snehawahurwagh01@
gmail.com



Ms. Swati
Vishwanath Hage

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-
swatihage23@gmail.com



The Berar General Education Society's

SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)

❖ Home made Cocoa Butter & Rose Water Body Lotions

Introduction :- We all are aware of the benefits of cocoa butter and rose water for the skin while the former is great to achieve smooth and deep nourished skin, the butter is best to soothe and calm the skin thanks to its anti-inflammatory and cooling properties. This made body lotion recipe is perfect for humid and sticky weather as it's quick absorbing as well as cooling.

Ingredients :-

1. Table spoon bees wax
2. $\frac{1}{2}$ cup extra virgin olive oil
3. Table spoon vitamin E oil
4. Table spoon cocoa butter
5. $\frac{3}{4}$ cup rose water .



Procedure :-

1. Melt all your ingredients like beeswax, cocoa butter along almond oil in a double boiler technique.
2. A double boiler technique refers to placing a glass bowl on the top of the other one which is exposed to direct flame & adding the product to melt in the bowl.
3. Once you see the ingredients begin to melt & mix, add vit E oil and take it off the flame in a few minutes.
4. Add rose water into a blender and as soon as you observe the water, slowly pour in the mixture & while your homemade body lotion is ready.





Ms. Vaishali
Panjabrao Charate

M.Sc.-I Year (Sem-II)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-

Charhatev6@gmail.com



The Berar General Education Society's

SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)

❖ Homemade kasha yam for Cold, Cough, Throat pain & Fever.

Introduction :- This home remedy for the treatment of cold, cough, throat pain and fever. Kashayam means a water decoction of a herbs or spices or mixed together. This kashayam serves as an excellent remedy to relieve from cold. The mild pepper flavor and strong flavor imparted from ginger along with sweet taste from jaggery tastes divine. The addition of tulsi & neem leaves helps to boost immunity and fights the viral infections and promote the well-being

Ingredients: Grated ginger – 3 tsp , Pepper – 1 tsp , Cumin – 1 tsp Cinnamon – 1, Cloves – 2, Turmeric powder -1/2 tsp, Raisins – 1 tsp , Basil or tulsi leaves , Tender neem leaves , Jaggery (optional) – a small piece , salt- ¼tsp

Procedures : Heat 3cups of water in a saucepan. Add cinnamon, cloves and allow to boil. Add grated ginger & stir. Add pepper, cumin & allow to boil. Add turmeric powder, salt, raisins, jaggery & stir. Add fresh tender neem leaves & basil leaves. Let the Kashaya boil for 6 to 8 min in low flame. Turn off flame. cover with lid & let the kashayam cool for 10 mins so the flavour get well infused. strain the kashayam in cups . Healthy kashayam is ready. Enjoy warm, it helps to cure cold, fever, throat pain & cough





Ms. Akanksha . S.
Dongre.

M.Sc.-I Year (Sem-I)
Chemistry

Contact
Department of
Chemistry
Shri R. L. T. College of
Science, Akola
E.Mail. :-



The Berar General Education Society's

SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)



❖ How to make a projector.

Introduction

How Projectors Work :- There are two major types of projectors in use as of this writing (things change pretty fast in the field). Projectors come with many features, strengths, or weaknesses, but most will run on either LCD or DLP technology. LCD is the older technology, but this does not mean that it is becoming obsolete by any means. LCD stands for Liquid Crystal Display. The way this places an image on a screen is fascinating and not nearly as complex as you might imagine. A bulb is set up to shine a fairly powerful light through a prism. The prism splits the light into its component colors and these are sent through small LCD screens. The screens themselves are sent signals to allow just so much of the light through at specific pixel locations. The light is then beamed through a lens onto a screen where the images can be seen by the human eye. DLP, or Digital Light Processing is a bit more complex. This time the light is shined through a spinning color wheel onto a chip that is mounted with hundreds of thousands of tiny mirrors. The mirrors are turned off or on by electronic impulses according to the need for the color at that moment. Even though only one color is shown at a time, one color follows another so quickly that the primary colors seem to blend into the appropriate color. The image appears to be constantly lit, when in fact small parts of it are constantly flickering. This technology was developed by Texas Instruments and is based on an older technology that was used for color television in the 1950s. Knowing the difference between these two types of projectors can be important, as LCD is considered better for static or high-contrast images. DLP, with its more vivid colors, is thought to be better for video. Some DLP projectors have been known to manifest a rainbow effect. This can happen when white objects move on a dark background. Small shadows of red, blue, or green may be seen. Most modern DLP projectors have overcome this problem with multiple chips and higher rotation rates for the color wheel.

Procedure :- Remove the Handle Carefully use your hacksaw to cut off the handle of the magnifying glass. Reinforcement Reinforce the box by gluing the flaps and corners of the box. This prevents it from wiggling. Let It Dry Don't get too excited. Let it dry for a few minutes. Lens Placement Position your box in an upright position. Place your magnifying lens on top then center it. Use a pencil to trace the cut line. Cutting the Perfect Round Hole Here's a simple trick that I used all the time. If you are too OC, you can use an EXACTO knife at the other end of a compass for cutting a perfect and round hole. Pop This is satisfying! Feels as if you were popping a bubble wrap. Position Your Lens Position your lens before gluing the it in place. Glue the Lens in Place Cut Off the Protrusion When you put the lid back on, the lid could block a portion of your lens (depending on the size of your lens or box). Use your precious cut out as a stencil then carefully slice off the excess cardboard that's blocking your lens. Build the Phone Stand Build a phone stand using a foam board. Make sure it's perpendicular from the base to avoid image distortion. Tape Your Phone Use a double sided padding tape to mount your phone on the stand. Set Your Phone Set your phone to the highest brightness: Simple, more light results to a brighter projection. Don't forget to lock the screen: The lens inverts the light source (your phone's LCD) to the projected image. This means you'll have to position your phone's screen in a topsy-turvy position in order to prevent it from auto rotating. Go set the lock-screen setting and disable the auto rotate. Flip The Image: (optional) Download an app that flips the orientation of the image. Adjust Your Projector Like all projectors, this one needs to be calibrated too. Position your phone at the very end of the box then slowly move it closer to the lens, you will notice that the image will turn sharper/ softer. Move it back and forth until you get the sharpest projection. Turn Off the Lights - Watch in the Dark Turn off your lights, wait for it to get dark then Enjoy!



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❖ HERBAL HOMEMADE ALOVERA SOAP.

• **Requirements** :- Alovera leaves , holy basil leaves (tulsi), vitamin E capsule, soap base

• **Procedure** :-

1. Take 4-5 fresh Alovera leaves & handful of fresh holy basil leaves wash them thoroughly.
2. Extract the alovera gel from alovera leaves.
3. Put them in mixer jar & blend them to make a paste.
4. Take a soap base & cut it into cubes in a vessel.
5. Melt the soap cubes in a microwave or on a gas stove using a double boiler method.
6. Add two tablespoons of Alovera gel, one tablespoon of holy basil leaves paste & one capsule of vitamin E capsules.
7. Put the mixture into the container or mould of any desirable shape
8. Freeze it for about an hour.
9. After an hour remove the soap from freezer & it is ready to use.

• **Benefits** :-

It helps in reducing acne & dry skin

It reduces skin dryness and itching

It also detoxifies and removes dirt from the skin

This soap has powerful antioxidants which keeps the skin hydrated



Ms. Ambika Mirjamle

M.Sc.-I Year (Sem-I)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-



Ms. Rajshri Gajanan
Raut

M.Sc.-I Year (Sem-I)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-



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❖ Bath Salts (Scented and Colored)

Requirements :-

- 3 cups plain Epsom salt.
- 1.5 cups coarse sea salt (such a pink Himalayan sea salt
- ½ cup baking soda.
- 20 drops essential oils of your choice (I like 10 drops lavender and 10 drops sweet orange)
- Optional: 2-3 tablespoons dried flowers if they are easy to get.

How to prepare Bath Salts :-

- Mix 3 cups of Epsom salt with about 1.5 cups of coarse sea salt .
- And mix ½ cup of baking soda
- Then add 15-20 drops of essential oils and mix.
- Add in rose petals and combine gently.
- Separate into glass jars.

Direction of use:-

- Add your bath salts to a warm tub of water anytime you want a little more relaxation or calming smell.
- Epsom salt is great for reducing inflammation, and rose oil is great for evening out your skin tone and reducing redness.





Ms. Divyani
Nandkishor Harne

M.Sc.-I Year (Sem-I)
Chemistry

Contact
Department of
Chemistry
Shri R. L. T. College of
Science, Akola
E.Mail. :-



The Berar General Education Society's

SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)

❖ Home Made Liquid Detergent From Soapnuts

Ingredients: soapnuts, hot water, essential oil of your choice, bowl, bottle, etc.

Procedure:

- (1) pour 4 cups of water into a large pot and bring to a simmer on your stove top.
- (2) Add 1 cups of soapnuts to the water and cook for 10 min.
- (3) remove the pot from the heat cover and allow the mixture to cool.
- (4) once the mixture had cooled use the potato masher to crush the soapnuts.
- (5) pour the mixture through the cheese-cloth to strain it and compost the soapnuts pulp.
- (6) add essential oil of your choice.
- (7) stir up the mixture well and pour into glass jar.
- (8) store your soapnuts liquid in the refrigerator.

Use :

Add $\frac{1}{2}$ to 1 cup to each laundry load depending on the size and dirtiness of the load.





Ms. Shivani Shyam
Tripathi

M.Sc.-I Year (Sem-I)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-



The Berar General Education Society's

SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)

❖ Home Made Liquid Detergent From Soapnuts

Requirements

- 1 quart skim milk
- Sieve
- Cheesecloth
- Dry color pigment or artists' acrylic paint
- Lemon



STEP 1 :-Mix the juice of a lemon with 1 quart of skim milk in a large bowl. Leave the mixture overnight at room temperature to induce curdling

STEP 2:-Pour it through a sieve lined with cheesecloth to separate the solid curds from the liquid whey. Add 4 tablespoons of dry color pigment (available at art-supply stores) to the curd; be sure to wear a mask, and stir until the pigment is evenly dispersed.

STEP 3:-Artists' acrylic paint also can be used in place of powdered pigment. Add it one drop at a time, and stir constantly until you achieve the desired hue. Whether pigment- or acrylic-based, milk paint will spoil quickly, so it should be applied within a few hours of mixing. Rest assured, its sour smell will disappear once the paint dries. If you prefer, you can purchase milk paint rather than make it yourself.

HOW TO MIX MILK PAINT

- First pour a small amount of milk paint into a mixing bowl or cup. If you're painting something small, start out with 1/2 cup, for something a bit bigger start with 1 cup of milk paint.
- Next add equal parts water. Meaning if you added 1/2 cup of milk paint add 1/2 cup of water.
- Mix it up well. I usually use my wooden spoon, but will sometimes use a small blender just to make sure I get all the lumps out.
- The paint will naturally be thinner than other paints and will feel pretty watery. Sometimes you will need to add more water or milk paint to get the consistency that you're looking for, but remember it should be a bit watery.
- Chances are it will have small lumps and that is ok.
- Let the paint sit for about 15 min to thicken up a bit.



Ms. Anushri
Jalamkar

M.Sc.-I Year (Sem-I)
Chemistry

Contact
Department of
Chemistry
Shri R. L. T. College of
Science, Akola
E.Mail. :-



The Berar General Education Society's
SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA
(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)

❖ Home Made Liquid Detergent From Soapnuts

Ingredients

- ½ cup dried soybeans (80 g)
- 4 cups water (1 l)
- ½ teaspoon vanilla extract
- 4 dates (optional)

Instructions:-

1. Soak the soybeans in water overnight (ideally 12 hours or longer).
2. Use yellow soybeans, it's the best kind of soybeans to make soy milk.
3. Drain the soybeans and remove the outer skins. Removing the outer skins is optional, but your milk will have a better texture if you do.
4. Add them to a powerful blender and blend them with 3 cups of water (750 ml) until well blended and almost smooth.
5. Pour the mixture into a pot or a saucepan and add 1 cup of water (250 ml). Bring to a boil, stir and skim foam.
6. Add more or less water depending on how thick you like your milk.
7. Cook over medium heat, stirring occasionally, for about 20 minutes.
8. Let cool the soy milk. You can add other ingredients such as vanilla extract or dates. Blend the mixture if necessary.
9. Use it to prepare recipes like vegan chocolate cake, vegan carrot cake, or vegan cheesecake.
10. The leftovers in a sealed container in the fridge for about 3-5 days.

Nutrition

- Serving Size: 1 cup (250 ml)
- Calories: 95
- Sugar: 2.1 g
- Sodium: 16 mg
- Fat: 4.8 g
- Saturated Fat: 0.5 g
- Carbohydrates: 4.2 g
- Fiber: 2.1 g
- Protein: 9.5 g





Ms. Priya R. Raut

M.Sc.-I Year (Sem-I)
Chemistry

Contact
Department of
Chemistry
Shri R. L. T. College of
Science, Akola
E.Mail. :-



The Berar General Education Society's

SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)

❖ Homemade floor cleaner

Requirements:- 2 cups of warm water, 1/2 cup white vinegar, 1/2 cup rubbing alcohol, 3 drops liquid dish soap (without bleach, oil or moisturisers) 5-10 drops essential oil (optional)

Process:-

1. Combine the ingredients in a large bowl.
2. Add the ingredients to a plastic or glass spray bottle and shake well.
3. Spray the cleaner liberally on the floor and wipe a mop.

Usage:-

This cleaner is ideal for eliminating many different types of stains and to remove stains, litter, and obstructions, to remove grit and sand which scratch and wear down the surface





Ms. Dipika B. Joshi

M.Sc.-I Year (Sem-I)
Chemistry

Contact
Department of
Chemistry
Shri R. L. T. College of
Science, Akola
E.Mail. :-



The Berar General Education Society's SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)

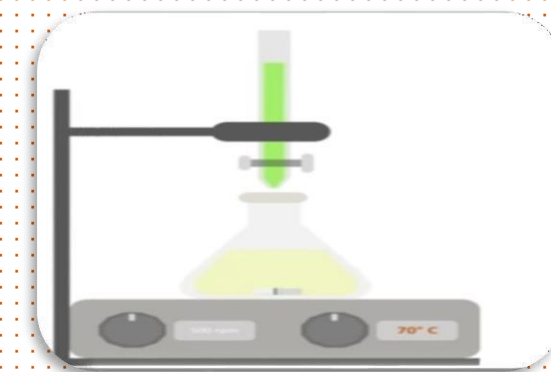
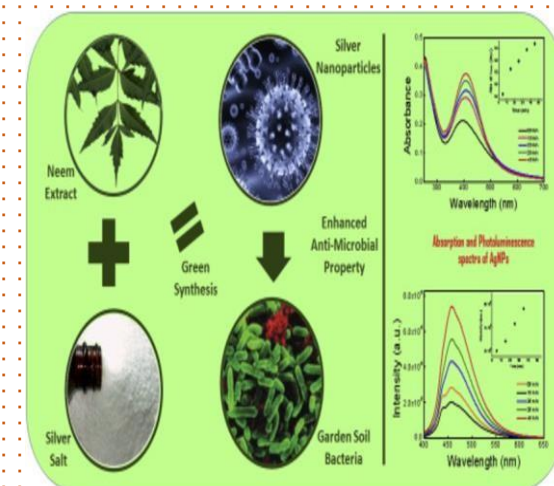
❖ Homemade floor cleaner

Introduction: - Silver has long been recognized as having an inhibitory effect toward many bacterial strains and microorganisms, commonly present in medical and industrial processes. In addition, silver-containing consumer products such as colloidal silver gel and silver-embedded fabrics are now used in sporting equipment. In this study, we screened several plant leaf extracts and compared their synthesis of silver nanoparticles by monitoring the conversion using UV-visible Spectroscopy.

Procedure: - 1) Take leaves (e.g. Neem) of desired plant, wash and cut in small pieces.

- 2) Setup the magnetic stirrer
- 3) Take 25g of leaves in 100ml of deionized water
- 4) Set Temperature to 80-90°C
- 5) Filter the Green extract in Burette to use as reducing and capping agent
- 6) Take 10mg Silver Nitrate in 50ml deionized water
- 7) Set Temperature to 60-70°C
- 8) Add leaf extract dropwise very slowly until the light yellow color forms.

Result: - Light yellow color indicated the formation of silver nanoparticles in water.





Mr. Nikhil Vishnu
Sharma

M.Sc.-I Year (Sem-I)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-



The Berar General Education Society's

SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)

❖ Dealing with microplastic with homemade remedies

What are microplastics ? :-They include any plastic fragments or particles that are already 5.0 mm in size or less than before entering the environment.

Where did they came from? :-They came as microfiber from cloth, microbead, fishing nets, plastic water bottles, tea bags, etc.,.

How they affect?

- Study says that we may ingest anywhere from dozens to more than 100000 microplastics particles each day.
- Which is just the same as one whole credit card in the Span of one year.
- Research has shown the potentiality for metabolic disturbance, neurotoxicity as well as carcinogenic effect.

So, It is necessary to remove microplastics from water or even the air we breathe. The best way to remove it is by means of homemade "Activated Biochar or Activated Charcoal".

REQUIREMENTS :- Coal (Biochar) , Mortar and Pistil, Cotton cloth, etc.,.

REACTION MECHANISM :- The activated charcoal adsorbs the fine microplastics from water.

More the surface of activated charcoal is, the more is the adsorption and greater will be microplastics out.

PROCEDURE :- [A] To make charcoal activated :-

- 1) Take an amount of coal and wash it thoroughly to remove ash from it.
- 2) After drying, powder it with the help of mortar and pistil.
- 3) Make a juice of lemon separately and pour that powder to it and stir it, keep it untouched for 24hrs in an airtight container.
- 4) On the next day filter it and wash it again. allow it to dry.

Here is your Activated Charcoal ready to Use!

B] Removing microplastics from water :-

- 1) Take a small amount of dry Activated Charcoal in cotton cloth .
- 2) Packed up tightly and just stirred it for 2-4 rounds in your water and filtered it with the help of cotton cloth.

Here is your microplastics free water is ready to Use

Whether you drink or bath!



Ms. Poonam Naswale

M.Sc.-I Year (Sem-I)
Chemistry

Contact
Department of
Chemistry
Shri R. L. T. College of
Science, Akola
E.Mail. :-



The Berar General Education Society's

SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)

❖ Paper plate or Plastic Plate

INTRODUCTION:--With a few simple materials that you probably have at home, you can make a pollution catcher which will help you see the dirt in the air with your own eyes! You can even make a few and put them in different locations. This will mean you can see whether the air is cleaner in the park or by a big road.

- Material :-**
- 1) paper plate or plastic plate
 - 2) Hole punch or pencil For making Hole
 - 3) Petroleum jelly
 - 4) 4 wire paper clips or string to hang Your pollution

Procedure :-

- 1) Turn your paper plate upside down on your workspace and make four holes in your Plate – two on the top and two on the bottom – using a pencil or hole punch.
- 2) Take the four paper clips (string will also work), fold them out and guide them You through each of the holes in your paper plate.
- 3) Now turn your paper plate back face up, take a big scoop of petroleum jelly and Generously spread on the surface of the plate. The petroleum jelly is sticky and will Catch the particulate matter in the air.
- 4) Finally, find a good place outside to hang your plate to catch pollution.





Ms. Prajкта Santosh
Varma

M.Sc.-I Year (Sem-I)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-
prajktavarmavarma3
[73@gmail.com](mailto:prajktavarmavarma373@gmail.com)



The Berar General Education Society's

SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

(Re-accredited with 'A' Grade by NAAC with CGPA 3.12)

❖ Homemade Vacuum cleaner [Best out of waste]

Ingredients : plastic bottle, Motor, 3.7 volt battery, small switch, propeller, cutter, plastic pipe, glue gun etc.

Procedure :

- 1) Take a plastic bottle cut it's middle part with the help of cutter.
- 2) After cutting bottle in two part, Take a second part of bottle and stick the motor in inner side with the help of glue gun.
- 3) Then take 3.7 volt battery and stick it on outer side of bottle above the motor.
- 4) After that join the wires of motor and battery to the switch.
- 5) Now take propeller and fix it on the motor.
- 6) After that, take first part of bottle and join to the second part over it with the help of glue gun.
- 7) Take pipe and fix it in the mouth of the bottle (i.e in the cap of bottle).
- 8) Vacuum is ready now.

Observation :

vacuum cleaner remove and clean kinds of surface by means of sucking and removing dust and small particles.





Ms. Ritika .P.
Kaithwas

M.Sc.-I Year (Sem-I)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-



The Berar General Education Society's

SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

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❖ Reuse Of Candy Wrappers

Introduction : If you have a sweet tooth, you probably know all about the tons and tons of candy wrappers. That are left after enjoyin some sweet treat. Throwing away all those can be seen like a waste. Especially, since they're bright and colourfull. There are some project you can do to reuse your candy wrapper. You can make a fruit basket, picture frame, bookmarks, collage etc. From one of I tried to make a pencile pouch.

Requirement : Plastic candy wrapper, fabric for lining, zipper, needle and thread or sewing machine.

Procedure :

1. Trim the edges of the candy wrapper bag and cut it across the centre. Cut a piece of lining fabric the same size.
2. Sew the candy wrapper to lining with straightstich all around the edges.
3. Fold the top end of the fabric down 1/4 inch and pin on the edge of the zipper.
4. Sew along the edge of the zipper with a straightstich. My zipper is much longer than the fabric so centered it. and sew the end of &the zipper. unzip the zipper head to centre.
5. Carefully reverse the bag. Cut the edges of the zipper of the size of the bag. Now straight stich sew down both side. Back stitching over the zipper couple of times. Turn the pouch right side and enjoy! They are ready to fill with your items. Save those candy wrappers. They are such a fun work with.





Ms. Samiksha .S.
Dongre

M.Sc.-I Year (Sem-I)
Chemistry

Contact

Department of
Chemistry

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

E.Mail. :-



The Berar General Education Society's

SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA

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❖ Tesla coil at home

Materials:

Components Required to build a Miniature Tesla Coil Magnetic wire a.k.a Enameled copper wire 22K Resistor 2N2222 Transistor LED

Ordinary breadboard wire Any non conductive cylindrical object 9V Battery (or 5V Supply) Breadboard

Introduction:-

Mini Tesla Coil Working:

Before we start building the Tesla coil, it is very important to know how it works. Only then we will be able to build and debug one successfully. The Tesla coil works with the principle of Electromagnetic Induction. According to which, when a conductor is placed under a varying magnetic field, a small current will be induced inside the conductor. For a Tesla coil this conductor will be called the secondary coil and the varying magnetic field will be produced by the primary coil by passing an oscillating current through the primary coil. It might sound a bit confusing, but let us proceed with the circuit diagram where things will be made much clearer.

Procedure:-

Mini 9V Tesla Coil Circuit Diagram:

The circuit diagram of the Mini Tesla Coil Project given below is very simple. So let us understand how it works and learn how to build it. The main component in this mini tesla coil diagram is the secondary coil (golden color), which is made by winding a magnetic wire (enameled) around a cylindrical object (any non conductive object will work).

