

DYEING OF DIFFERENT FABRICS WITH NATURAL DYE OBTAINED FROM LEAVES OF *TRADESCANTIA PALLIDA PURPUREA*

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ABSTRACT

Natural dye is compared with synthetic dye it was observed that natural dye is most beneficial than synthetic dye and it is safe for skin and non-hazardous to human health. Natural dyes are harmonizing and soothing the human eyes. Now a day natural source of dye from plants has a more interest in recent year because of synthetic dye arises a harmful effect due to the use of chemicals and their processing is harmful in our health. Natural dye is helpful to overcome the risk of artificial dye. Natural dye is one of the important uses of the plants. Now a days the natural dye interest grows rapidly due to the environmental awareness and also for overcome the toxicity and allergic effect of synthetic dye. A wide range of colour of natural dyeing can produces by applying different dyeing techniques, extraction methodology, solvent etc was used from the same plants. In this present study Tradescantia pallida leaves were selected for the different selected materials like Cotton, Woollen, Polyester and silk threads.

Keywords: Tradescantia Pallida, Sodium Dichromate, Aqueous Solution of Acetic Acid, Pottasium Dichromate and Different Fabrics.

Introduction

The genus Tradescantia has been much used as an ornament in all Brazilian states not only because it grows and propagates easily but also because it is highly resistant to climatic conditions and environmental factors (Silva AMAP, Silva AM, Masson R, Mota RD, Costa NC, Ribeiro EE, et al.2015). India has a rich plant biodiversity. It has approximately 490,000 plants species, the plant kingdom is a huge diversity of natural products (Neha Grover et al., 2011). Now a day natural source of dye from plants has a more interest in recent year because of synthetic dye arises a harmful effect due to the use of chemicals and their processing is harmful in our health. Natural dye is helpful to overcome the risk of artificial dye. Natural dye is one of the important uses of the plants. Now a days the natural dye interest grows rapidly due to the environmental awareness and also for overcome the toxicity and allergic effect of synthetic dye. Because of the low cost of synthetic dye stuff, the use of natural dye is very less at the beginning of 20th century (Kumaresan et. al., 2011). Presently the many of the countries used the natural dye for the commercial purposes for making handcraft products. Recently most of countries, the natural dye is used for the commercial handcraft practiced. Therefore, the worldwide concern to gain the interest in natural dye by using the ecofriendly and biodegradable material (Agrawal A, Goel A & Gupta K C, 1992). *Tradescantia pallida purpurea* plant shows the seasonal seasonal monitoring characteristic for vehicle pollution and metal emission (Santos APM, Segura Muñoz SI, Nadal M, Schuhmacher M, Domingo JL, et al. ,2015). Most of the species of the genus Tradescantia plant belonging to the family Commelinaceae are used as Ethnobotanical, ethnomedicinal and also for ornamental purpose (Jing P,

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Bomser JA, Schwartz SJ, He J, Magnuson BA, et al. 2008 & Baublis AJ, Berber Jiménez MD,1995). Natural dye is compared with synthetic dye it was observed that natural dye is most beneficial than synthetic dye and it is safe for skin and non-hazardous to human health. Natural dyes are harmonizing and soothing the human eyes.

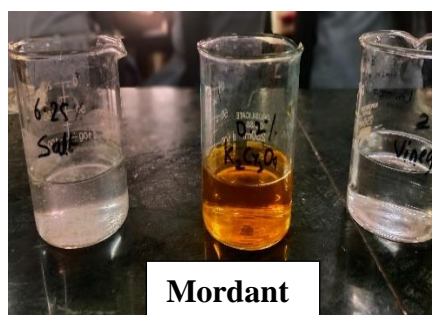
Material and Methods

- **Collection of the Plant Material:** *Tradescantia pallida purpurea* leaves were collected from Shri. R.L.T. College campus
- **Dye Extraction:** The collected material of plant was used for dye extraction. The collected plant material used for extraction dye. The (50g) sample was washed and crushed then dissolved in deionized (500ml), for quick extraction the material was boiled for 2 hrs in a hot water bath. After the end of 2 hrs the colour was extracted, the solution was double filtered and it was used to carry out our study.
- **Dyeing Material:** To test dyeing ability of extract like Cotton, Woollen, Polyester and Silk threads were used
- **Premordant Dyeing:** Sodium chloride, Aqueous solution of acetic acid and potassium dichromate used as mordants. After filtration the extract were used for dyeing textile material. The textile material was washed before used for dyeing and then transferred threads into 0.5% potassium dichromate, 6.15% Sodium chloride and 30% Aqueous solution of acetic acid and allowed to boil for 1hr at 500°C. Afterwards, the threads were move to 200°C dye bath for 1hr. and then dried it at room temperature. The dried threads are further tested for its colour fastness. We were tested wash fastness by washing the threads with soap solution.

Result and Discussion

A wide range of colour of natural dyeing can produces by applying different dyeing techniques, extraction methodology, solvent etc was used from the same plants. In this present study *Tradescantia pallida* leaves were selected for the different selected materials like Cotton, Woollen, Polyester and silk threads. In textile natural dyeing was found inadequate fastness properties in the yield so that to overcome the complicated efforts selected mordants are used. Metal ions of the mordants which acts as electron accepts for electron donors form the coordination bonds with the dye molecules which should be insoluble in the water (Mongkholrattanasit, et al 2011).

In the present study, different dye was extracted from *Tradescantia pallida* leaves from different grades. After completion of work sodium chloride, Aq. Solution of Acetic acids and potassium dichromate was best solution for dyeing process. As per the observation four threads like Cotton, woollen, polyester and silk used in this study we observed that silk is most favourable thread as compared to cotton also observed that cotton and silk is good yarn than polyester and woollen. Table 1 indicated the colours of the dyed threads. In cotton fabrics Dusty Rose colour colours were obtained by using sodium chloride, Lilac colour in Aq. Solution of Acetic acid & Dark Olive colour in potassium dichromate. In woollen fabrics fade Plum colour were obtained by using sodium chloride, purple colour in Aq. Solution acetic acid and Moss colour in potassium dichromate. Polyester fabrics Ruby colour is obtained by using sodium chloride, plum colour is obtained in aq. Solution of Acetic acid and moss colour is obtained by using potassium dichromate. In silk fabrics pink colour is obtain by using sodium chloride, Taffy pink colour is obtained by using aq. Solution of acetic acid and sage green colour is from potassium dichromate. Finally, I conclude that to prevent the synthetic dye pollution and other harmful effects we are trying to use the natural dye.





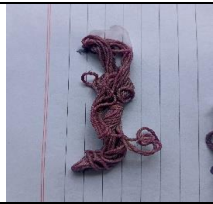













	Natural	Sodium chloride	Aq. Solution of acetic acid	Potassium dichromate
Cotton				
Woolen				
Polyester				
Silk				

Table 1: *Tradescantia pallida* synthesis Colour Compound

Threads	Sodium chloride	Aq. solution of acetic acid	Potassium Dichromate
Cotton	Dusty Rose color	Lilac color	Dark Olive color
Woolen	Fade Plum color	Purple color	Moss color
Polyester	Ruby color	Plum color	Moss color
Silk	Pink Balloon colour	Taffy Pink color	Sage Green color

Conclusion

From the present work it was clear that than be used succeed natural dye extraction from the plant such as *Tradescantia pallida* can be used successfully for the different kinds of threads. These dyes are environment friendly, skin friendly and harmless as compared to synthetic dye.

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