Exploration of Leaves Based Natural Dyes - A Review

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***Abstract*: Nowadays, demand for natural dyes has been growing rapidly due to increased awareness on hazardous, toxic and allergic reactions associated with synthetic dyes. Natural dyes are obtained from natural sources such as plants, insects and minerals. Among all the plant based dye sources i.e. bark, flowers, seeds etc plan leaf dye sources are more important for textile dyeing as it provides both dye as well as fragrance. This paper reviews the available leaves dye sources, application and extraction of colourant from leaves and effect of different mordant.**

***Keywords*: Natural dye, colourant, mordant and application.**

Introduction

These days the environmental protection has become a challenge for the textile industry because it uses a fairly large number of chemicals for dyeing and printing. These chemicals are harmful for both human as well as environment. Synthetic dyes suffer from several draw-backs. Some of the synthetic dyes which are even carcinogenic and mutagenic have been banned. In this era of green minded consumer, interest in natural dyes has grown mainly because natural dyes have been shown to possess health-promoting and eco-friendly properties.

India is one of the 17 megadiverse countries and there is no doubt that the plant diversity is a treasure-house of diverse natural products. Two such products from nature are leaf and color. India is the well-known country of colors as it harbours a wealth of various leaf resources. The preliminary study on review collection on extraction of dyes from leaves revealed that leaves could serve as promising, alternate resource of natural dye. Fresh tree leaves of each species, supplemented with different coloring components, has ability to produce different colors on textiles. In the present study, an attempt has been made to provide valuable information on leaf dye extracted from natural resources.

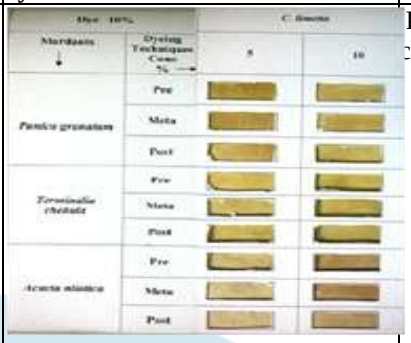
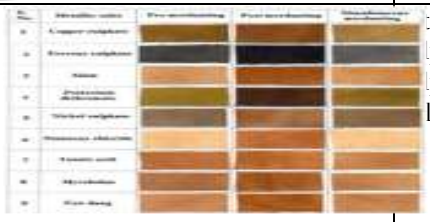
Mordants

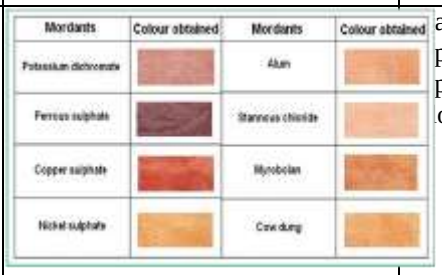
Natural dyes require an element to create a bonding between fabric and the dye particle. The mordant is known as the element which can facilitate the chemical reaction taking place between the textile fibre and the dye or pigment; as a result, the dye is absorbed into the textile material. A mordant is utilized to fix the dye to the fabric and to increase the colour fastness.

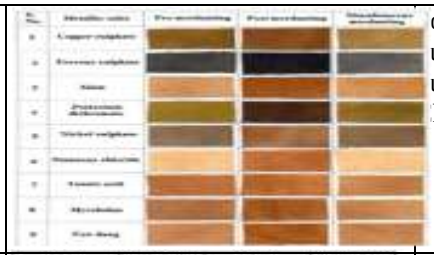
Mordants can be classified as:
i. Metallic mordants- Metal salts of chromium, iron, aluminium, copper and tin.
ii. Oil mordants- Turkey red oil.
iii Natural mordants- tea leaves, myrobalan, vinegar.

Natural dye obtained from leaves

Many natural dyestuff and stains were obtained mainly from plants and dominated as sources of natural dyes, producing different colours like red, yellow, blue, black, brown and a combination of these. Almost all parts of the plants like root, bark, leaf, fruit, wood, seed, flowers, etc. produce dyes· It is interesting to note tht over 2000 pigments re synthesized by various parts of which only about 150 have been commercially exploited. Nearly 450 taxa are known to yield dyes in India alone, of which 50 are considered to be the most important. Some important dye yielding leaf plant habitats are given in the table1.

S.No	Plant leaves	Appearance	Botanical Name	Colour obtained	Colors produced on cotton fabric dyed with Mordant	Mordants were used
1	Lemon		Citrus limon(L)	Yellowish green		Punica granutum, Terminalin cheula, Acacia nilotica
2	Aleo vera		Aleo barbadensis tataricas	Green		Soapnut, Onion ash
3	Tamarind		Tamrindus indica L	Red		ium dichromate, Ferrous e, Copper Sulphte, Nickel e, Alum, Stannous e, Myrobolan, Cow dung.
4	Mulberry		Morus rubra	Brown		assium dichromate, Ferrous phate, Copper Sulphte, Nickel phate, Alum, Stannous loride, Myrobolan, Cow dung.

5	Coffee		Coffea Arabica	Brown		assium dichromate, Ferrous phte, Copper Sulphate, Nickel pahte, Alum, Stannous oride, Myrobolan, Cow dung
6	Ficus cunias		**Ficus cunias**	Red		Without Mordant, Ferrous Ammonium Sulphate
7	Mango		Mangifera indica	Green		s Sulphate, Alum-Tin, Alum + Tin
8	Eucalpytus		Ecualpytus globalus Labill	Brown		Without Mordant, Pottasium Aluminium Sulphate
9	Green chirayta		aph ta	Light green		Lemon ash, Harda

10	Indian white head	 tema e	Green		otassium dichromate, Ferrous ulphate, Copper Sulphte, Nickel ulphate, Alum, Stannous hloride, Myrobolan, Cow dung
11	Henna	 onia is L	Reddish orange		Alum, Potassium dichromate, Nickel Sulphate, Myrobolan, Cow dung, Ferrous Sulphte, Copper Sulphate, Stannous Chloride
12	Teak		Red	 	

Conclusion

Due to increasing awareness among people about the harmful effects of synthetic dyes, products made from natural materials are gaining popularity. As natural dye shows non-toxic, non-allergic effects and results in less pollution as well as less side effects, it become a thrust area in the field of textile dyeing research. Although art of natural dyeing has been practiced for centuries in India, no serious attempts have been made to document and preserve this treasure of traditional knowledge of natural textile dyeing associated with the indigenous people.

In spite of being gifted with treasure of diverse flora and fauna, only a little has been exploited for the fulfillment of textile coloration. The study on review collected on natural dyes is an innovative approach towards documenting the treasure of indigenous knowledge on the utilization of resources of natural dye. Such research is collection, documentation and analysis of data on valuable leaf resources available for natural dyeing. It focuses on forming strategy for conservation of leaf dye resources.

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