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RESEARCH ARTICLE

"EXTRACTION OF NATURAL DYE FROM BUTEA MONOSPERMA (LAM.) TAUB. FLOWER DYEING COTTON - POLYESTER FABRIC"

Parag Patel, Karan Patel, Chilka Prajapati, Meghna Thakor and Neha Raval
Department of Botany, Merchant Science College, Gadha (Basna), Mehsana, Gujarat, India.

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Abstract

Natural dyes are emerging globally as eco-friendly synthetic colorant. Natural dyeing is process of applying coloring matter directly on fiber, yarn or fabric without any additives. *Butea monosperma (Lam.)Taub.* is one of most important ornamental plants mainly grow in forest and rich in orange pigments. In the present study, the dyeing pigments present in naturally drop flowers of *Butea monosperma (Lam.) Taub.* Extraction by using four different Mordant with aqueous extraction method and one Ethno botanical local method on **cotton-polyester mix fabric.** The result revealed that, different color like light yellow, orange, brown, cream etc. were obtained from the dye when subjected to Mordant. The crud flower petals dye after further purification and refining has tremendous scope as medicine and also serve a coloring material in soft drink and other food product like jam, chow main, noodles, sausage etc. Natural dye from the flower of *Butea monosperma (Lam.) Taub.* In the field of textile, food item and pharmaceutical industry.

Introduction:-

The natural dyes from plants were traced long time ago. In India 450 plants are found to be good source of natural dyes. But in this study *Butea monosperma (Lam.)Taub.* plant belong to the Family Fabaceae is commonly call as a Kesudo, Palash, Dhak or Flame of the Forest. It is native of south Asia and mainly in India. Ethno botanically *Butea monosperma (Lam.) Taub.* is very important plant.

Dyeing is a method which imparts beauty to the textile by applying various colors and their shads on fabric. Majorly dyes are two types- Natural dyes and Synthetic dyes. The natural dyes are extracted from natural substance such as plants, animals or minerals, Synthetic dyes are made in laboratory with the processing between different chemicals. Natural dyes are very useful in future because of it's color fastness. Natural dyes are also Economical use - India export of natural color and dyes in 2016 at value 47.68 USD Million and states has increased 4.01% year by year. The present investigation mainly deals with the extraction of natural dye from *Butea monosperma (Lam.) Taub.* and it's parable application in the field of textile, food and pharmaceutical industry.

Materials and Methods:-

Materials:

Source:

Butea monosperma (Lam.) Taub flowers were collected from 23°44´03´´N - 72°44´39´´E of Mehsana district.

Corresponding Author:- Parag Patel
Address:- Department of Botany, Merchant Science College, Gadha (Basna), Mehsana, Gujarat, India.

Substrate:
Cotton and polyester mix fabric that contain 65% of cotton and 35% of polyester.

Chemicals:
Alum, Ferrous sulphate(FeSO4), Stannous chloride(SnCl2), Cupper sulphate (CuSO4), Sodium hydroxide (NaOH) , Soda ash(Na2CO3).

Method:-

Pre treatment before dyeing method for fabric and flowers *of Butea monosperma (Lam.) Taub*.:
Before the use of fresh flower of *Butea monosperma (Lam.) Taub.* wash that carefully and dry it in room temperature. And before use of fabric gives it Sodium Hydroxide (NaOH) treatment for 30 minute for remove starch for cotton-polyester fabric. And dry that fabric in sun light. After that note down the weight of *Butea monosperma (Lam.) Tuab.* flowers.

Mordents treatment for fabric:
The clean scouring cotton-polyester fabric treated with different mordant such as Alum, Ferrous sulphate(FeSO4), Stannous chloride(SnCl2), Cupper sulphate(FeSO4), for 30 minute and make it cool at room temperature. (Figure:-1)

Aqueous extraction method:
40 gm fresh flower of *Butea monosperma (Lam.) Taub* were boiled in 200 ml distilled water at 100°C till all pigments of orange color come in solution and flowers become colorless. Finally filter the solution and used for further study.

Dyeing of fabric:
Tack mordant treated five pice of cotton - polyester mix fabric of 10cm × 10cm in length. Give treatment with dyeing that extracted from *Butea monosperma (Lam.) Taub.* and put down for 15 to 20 hour. After dry that fabric at room temperature.

Figure:-1 Moderating treatment of fabric

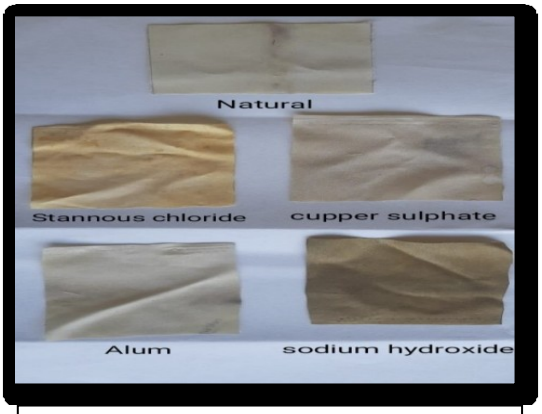

Figure:-2 fabric after drying

Result And Discussion:-

The different color and shades were obtained on cotton - polyester fabric after drying. The different of fastness is depending upon the mordant and properties of dye. (Table no:-1)

This table shows compression between pice of fabric that use directly (Naturally) without any mordant treatment and pices of fabrics that treatment with different mordant. (Natural is a good with dye)

Table No.:- 1

No.	Mordant	Result
(1)	Cupper sulphate(CuSO4)	good

(2)	Ferrous sulphate(FeSO4)	Very good
(3)	Alum	good
(4)	Stannous chloride(SnCl2)	excellent

For the conformation of the result treat cotton - polyester mix fabric in hot water for 30 minute. After that make it dry, and treated with soda ash for 30 minute. After wash dry that fabric in direct sun light. (Figure:-2)

Conclusion:-

In this country, a global awareness is already in place favoring the use of natural resource for protecting the environment and the earth from pollution and ecological imbalance. In the present scenario is forced more toward the utilization of the vast diversity of natural resource of color pigment for their use in food materials, pharmaceutical and textiles, in place of their synthetic counterparts. This trend is aimed at human welfare. In our study dyes obtained from *Butea monosperma (Lam.) Taub*. is give more good result with cotton - polyester then pore 100% cotton. Also type of mordant is give different shade on fabric. Stannous chloride (SnCl2) is give excellent sresult then other mordent. And Cupper sulphate (CuSO4) and Alum give good result. The above test results strongly indicate that natural resource could have a grate value in textile coloration and in the export market.

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