

DYE-YIELDING ARBOREAL SPECIES OF SEHORE DISTRICT OF MADHYA PRADESH, INDIA

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Received : 25.09.2017 ; **Revised** : 03.10.2017; **Accepted** : 06.10.2017**ABSTRACT**

Dye-yielding arboreal species of Sehore district, of Madhya Pradesh (India) is very rich in biodiversity as well in forest cover. The study is based on extensive survey, information and specimen collection and review of concerned relevant literature. The indigenous or local people of this area use different colours obtained from plants for variety of purposes. The study will help to assess the availability of dye-yielding plants in Sehore district and their ethnic uses. It will also help in understanding the socio-cultural and socio-economic life of the rural folks, help in preservation of this wealth of traditional knowledge and conservation of biodiversity at large. During survey work maximum numbers of species belonging to leguminosae were observed.

Figure : 00

References : 34

Table : 01

KEY WORDS: Arboreal, Biodiversity, Dye-yielding, Ethnic use, Indigenous, Socio-cultural, Socio-economic, Survey, Traditional knowledge.

Introduction

Indians have been a forerunner in the art of natural dyeing. They use dyes in the colouring of textiles, drugs, cosmetics *etc.* As they are non-toxic, they are also used for colouring various food products. The natural dyes are eco-friendly, non-polluting and non-carcinogenic. They can be obtained from plants, animals or minerals. The dyes that are obtained from animal sources are called cochineal and those that are obtained from minerals are called ochre. Mostly natural dyes are obtained from plants. The most common plant parts used for extracting dyes are roots, bark, stem, leaves, flowers and fruits³². The shade of colour that plant produces will vary according to the season at which the plant is picked, how it was grown, soil conditions *etc.* The dyeing process generally involves extraction of colouring matter from the plant part, creating a bond between the colouring matter and the fibre to be dyed and actual dyeing process.

Natural dyes are well known for producing uncommon, soothing and soft shades as compared to synthetic dyes. They exhibit several important properties that provide a significant edge over synthetic dyes. Some of the advantages of natural dyes are:-

- They are biodegradable, non-toxic, ecofriendly and renewable.
- They help in employment generation.
- Many natural dyes have antibacterial properties.
- The waste generated can be used as biofertilizer.
- A wide spectrum of colours can be produced (by mix and match).
- Natural dyes bleed but do not stain other fabrics (except turmeric).

Besides the above mentioned advantages there are some disadvantages also. Some of them are mentioned below:-

TABLE -1: Dye-Yielding arboreal species of Sehore district of Madhya Pradesh, India

S.	Local Name	Botanical Name	Family	Part used	Colour obtained
1	AAM	<i>Mangifera indica</i>	ANACARDIACEAE	BARK	LIGHT YELLOW
2	ACHAR	<i>Buchnanania lanzan</i>	ANACARDIACEAE	BARK	RED
3	AMALTAS	<i>Cassia fistula</i>	LEGUMINOSAE	BARK	YELLOW
4	AONLA	<i>Embllica officinalis</i>	EUPHORBIACEAE	BARK, FRUIT	BLACK
5	ARJUN	<i>Terminalia arjuna</i>	COMBRETACEAE	FRUIT	BROWN
6	BABOOL	<i>Acacia nilotica</i>	LEGUMINOSAE	BARKFLOWER	BROWNYELLOW
7	BAHERA	<i>Terminalia bellarica</i>	COMBRETACEAE	BARKFRUIT	BROWNBROWN
8	BEL	<i>Aegle marmelos</i>	RUTACEAE	BARKFRUIT	BROWNBROWN
9	BER	<i>Zizyphus mauritiana</i>	RHAMNACEAE	BARK	PINK
10	BIJA	<i>Pterocarpus marsupium</i>	LEGUMINOSAE	BARK	RED
11	DUDHI	<i>Wrightia tinctoria</i>	APOCYNACEAE	BARK	PUNICE
12	GULAR	<i>Ficus racemosa</i>	MORACEAE	BARK	RED
13	HARRA	<i>Terminalia chebula</i>	COMBRETACEAE	FRUIT	BLACK
14	IMLI	<i>Tamarindus indica</i>	LEGUMINOSAE	BARKLEAVES	BLACKRED

- ❑ Lack of precise knowledge of extraction and dyeing technique.
- ❑ Reproducibility of same shade is difficult.
- ❑ Mordants are required to fix dye to fabric.
- ❑ They are expensive.

Despite several limitation, there has been a trend to revive the art of natural dyeing in recent years. This is largely due to increase in environmental consciousness among the general masses world wide².

Natural dyes can be used on most type of materials or fibres, but the level of success in terms of fastness and clarity of colour varies considerably. Mordant substances are needed to set the colour when using some natural dyes. There are many naturally occurring mordants which give different shades and also facilitates the bonding of the dyestuff to the fibre. Some mordants can be obtained from plants like *Achyranthes aspera* and *Garcinia xanthochymus*²⁷. Ash, clay, limestone, cow urine, cow dung are also used for different purposes. Ash and clay are used as mordant, cow urine gives fast drying property to the dye. Cow dung acts as fixing agent. The fresh dung is collected, dried then put in boiling water, stirred and strained through a simple filter, to be added at the time of colouring the object³³.

Review of literature shows that several studies were carried out on dye-yielding plants in the recent past^{10-13,23,25,31}. A lot of work on dye yielding plants have been done in the Northeast India^{1,3,4,16,19,26}. Sources of natural dyes in India, a compendium with regional names have been made⁵. Observations of natural dyes in *Ficus* sp. from Hoshangabad district was reported⁶. Workers⁹ reported Natural dye from some Indian plants. Ethno color concept among some tribals inhabiting selected villages of Ganjam district, Odisha have been studied⁸. Rainbow of Natural dyes on textile using Plant extractswas recorded². Antibacterial activities of some selected dye yielding plants in eastern India⁹. Work on dyeing with Natural dye in acidic medium has been done¹². Introduction to Natural dyes and also on present status of Natural Dyes was worked out^{14,15}. Natural dye-yielding plants of Shervaroy Hills of Eastern Ghats was studied¹⁸. Dyeing properties of Natural dyes from vegetable sources have been studied²¹. Ethnobotanists²⁸ have worked on application of Natural Dyes on Textiles. Dye-yielding plant diversity of district Rajouri, Jammu and Kashmir have been

studied²⁴. Some unrecorded Dye-yielding plants and their less known ethnomedicinal uses in Uttarakhand²⁹. However, the dye-yielding plants with reference to Madhya Pradesh were not properly studied^{16,17,33}. Thus this study was undertaken to enumerate the arboreal dye yielding plants growing in Sehore district of Madhya Pradesh.

Study Area

The present study was conducted in Sehore district from July 2015 to July 2016. It lies in the central part of Madhya Pradesh. The shape of the district is roughly triangular. It lies between 22°31' and 23°40' north latitude and 76° 22' and 78° 08' east longitude. Its height from sea level is 1500 feet to 2000 feet. It has an average elevation of 502 m (1646). Area of the district is about 6578 sq.km. and total forest area is about 1529.816 sq. km. The climate of Sehore is characterized by hot summers, pleasant winters and general dryness except during rainy season. The forest of Sehore district may be broadly classified as tropical dry deciduous forests. The most important species is teak *Tectona grandis*.

Material and Methods

Extensive field survey and plant collection were undertaken in various localities of Sehore district. Information was recorded on various aspects of dye-yielding resources, along with their other ethnobotanical information. The usual method for collection of plant specimen and recording of ethnobotanical information of dye-yielding plants have been adopted. The detailed information of dye-yielding plants have been recorded through observation and personal interviews with old and elderly people of the study area. Around 30 informants, belonging to diverse fields were interviewed. Besides personal interviews, relevant literature have also been consulted. Photographs of plant specimens have also been taken. Various relevant flora's have been consulted for identification of plant specimens^{20,22,34}.

Result

In the study area about 30 dye-yielding arboreal species belonging to 16 families have been identified. Each species is arranged alphabetically and is provided with correct local name, botanical name, family, dye-yielding parts and colour obtained.(Table -1). Leguminocaea is found to be dominant family with 9 species, followed by Combretaceae having 4 species and

Anacardiaceae, Moraceae and Sapotaceae with two each, and Boraginaceae, Malvaceae, Verbenaceae, Meliaceae, Ebenaceae, Euphobiaceae, Rutaceae, Rhamnaceae, Apocynaceae, Myrtales and Sapindaceae having one each. In terms of plant parts utilized, it was found that mostly bark has been utilized for dye extraction, followed by flowers, fruits, leaves and

seeds.

Conclusion

Preliminary study of the region shows that Sehore district is a store-house of economically dye-yielding plants. Efforts are made to improve plant yield and also concentration of dye, through various biotechnological techniques.

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