RESEARCH ARTICLE

DYE YIELDING PLANTS OF BARWANI DISTRICT, MADHYA PRADESH

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Abstract: Natural dyes are colours obtained from plants, invertebrates or minerals. Vegetable dyes from angiosperm plant sources comprise major part of natural dyes. Further, other biological sources such as fungi and lichens also contribute in the production of natural dyes. Due to the discovery of synthetic dyes in nineteenth century a marked decline in the use of natural dyes was experienced. Now-a-days extraction and use of natural dyes is confined as traditional knowledge (TK) among the rural people of few villages only. Barwani district in Madhya Pradesh has few areas where this TK is still in practice among the villagers. District is situated on the south-west part of Madhya Pradesh and lies between 21°37'N-74°27'E and 22°22'N-75°30'E. In the present communication TK available with the villagers in Barwani district is documented using semi-structured questionnaire. During field survey in the study area, 11 plant species are recorded which are used as a source of natural dyes was experienced. Now-a-days extraction and use of natural dyes in confined as traditional knowledge (TK) among the rural people of few villages only.

Keywords: Natural dyes plant, Indigenous knowledge, Medicinal uses, Angiosperm

INTRODUCTION

Natural dyes are obtained from animal or plant material without any chemical treatment. Natural dyes have several advantages over the synthetic dyes like their biodegradable and non-toxic nature, environment friendly and aesthetically appealing properties. Easy extraction of colour by boiling the plants, berries, leaves, bark or flower heads in water increases the acceptability of natural dyes. The Madhya Pradesh state in the heart of India, is very rich in biodiversity as well as in the forest cover. Barwani district in Madhya Pradesh has such few areas where this TK is still available among the villager's. District is situated on the South – West part of Madhya Pradesh. In the human civilization plants are used not only as the basic needs of life such as food, fiber, fuel, cloths and shelter but also as sources of natural dyes for dying cloths, designs and painting. The present study was undertaken to assess the diversity of dye-yielding plants of Barwani district. Now-a-days extraction and use of natural dyes is confined as traditional knowledge and will also be helpful in understanding the social and cultural life of tribes of this region.

Available literature shows that several studies were carried out on dye yielding plants in the recent past (Rashmi et al., 2004, Debajit and Tiwari 2005, Shiva 2007, Purohit et al., 2007, Gour 2008 and Garg et al., 2010). However, dye yielding plants are not properly studied with reference to Madhya Pradesh (Tiwari and Bharat 2008; Choudhary and Upadhyay 2011).

Study area

The name of Badwani originated from the forest of 'Bad' (*Ficus bengalensis*) which has surrounded the city in old times, 'wani' is the old word for the garden, therefore the city got the name 'Badwani' which means 'Gardens of Bads'. Badwani is situated on the South-West corner of Madhya Pradesh. The district lies between 21°37/ and 22/ North latitudes and 74º 27/ and 75º 30/ East longitudes. The district is triangular in shape with the highest point in the West. The total geographical area of the district is 3665 Sq.km. out of which forests occupy 1875.88 Sq. km. (51%) of area. The present study was conducted in Barwani District from March 2011 to Dec. 2012 to gather information on plants used by locals in traditional way.

MATERIALS AND METHODS

Extensive field surveys were undertaken in various localities of Badwani district and information was recorded on various aspects of dye-yielding resources, along with their other ethnobotanical information. The detailed information of dye-yielding plants has 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 was also consulted. Photographs of plant specimens have been taken. Various relevant floras were consulted for identification of plant specimens.

RESULTS

The plants, with their parts used for dyeing purpose and specificity in application are enumerated in Table 1. Specimens of all these plants were collected and deposited in the herbarium Department of Botany, P.M.B. Gujrati Science College, University of Devi Ahilya University, Indore. It has been

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observed that the people of few areas like Toranmal, Nagalwadi, Varla and Dhavali of Badwani District still use plants for obtaining natural dyes. In the studied area, about 11 dye-yielding arboreal species belonging to 8 families have been identified which are generally used by the people to obtain dyes (Fig. 3). Each species is provided with correct local name, botanical name, family, dye-yielding parts and colour obtained (Table-1). Fabaceae and Euphorbiaceae are the two angiosperm families which contributed maximum plants as dye yielding species. Among the collected species, bark of two species, flowers of 04 species, fruits of 01 species, leaves of 03 species and bark as well as flowers of 01 species are used to get natural dyes.

Table 1. Important natural dye yielding plants with application specificity

S. No.	**Plants Species / Family / Vernacular Name**	**Plant parts used**	**Colour/hue of dye**	**Application specificity**
1.	*Ampelocissus latifolia* (Roxb.) Planch. Family : Vitaceae Vern. name: Amrola	Leaves	Green	Dye obtained from this plant species is used to dyeing textiles clothes etc.
2.	*Ziziphus xylopyrus* (Retz.) Willd. Family : Rhamnaceae Vern. Ghatbor	Bark	Pink	Bark is used as mordant in silk dyeing.
3.	*Butea monosperma* (Lam.) Taub. Family : Fabaceae Vern. Palasa	Bark, Flowers	Yellow, Orange	Flowers yield deep yellowish orange dye used for colouring clothes and other decorative purposes.
4.	*Indigofera tinctoria* L. Family : Fabaceae Ver. Neel	Leaves	Blue	The dye obtained is used to dye cotton clothes.
5.	*Acacia catechu* (L.f.) Willd. Family : Mimosaceae Vern. Katha	Heartwood	Reddish Black/ Brown Yellow	A fast reddish black dye is obtained from the heartwood by boiling in water for about one hour. The dye is used in the preparation of local ink and dyeing cotton fabrics.
6.	*Nyctanthes arbor-tristis* L. Family : Oleaceae Vern. Harsingar	Flowers	Yellow	Flowers tube contains on orange coolouring matter 'hydathin' which is used in colouring of silk. It is also useful in printing purposes.
7.	*Wrightia tinctoria* R.Br. Family : Apocynaceae Vern. Dhudi	Flowers	Pink	An adjuvant in dyeing.
8.	*Justicia adhatoda* L. Family : Acanthaceae Vern. Dudi	Flowers	Yellow	The flowers are used to get a yellow dye for fabrics however; alum is used as mordant in the process.
9.	*Woodflordia fruticosa* (L.) Kurz Family : Lythraceae Vern. Dhawai	Flowers	Pink / Red	Flowers yield a brick red dye which is used for colouring rope materials, cloths etc.
10.	*Mallotus philippensis* (Lam.) Mull.Arg. Family : Euphorbiaceae Vern. Sindhuri	Fruits	Red	Fruits are used to get a dye for silk.
11.	*Phyllanthus emblica* L. Family : Euphorbiaceae Vern. Aonwla	Leaves	Black / Grey	A black dye is obtained from the bark or fruits which are soaked in water for 4 to 5 days or boiled. The dye is used for dying fishing nets.

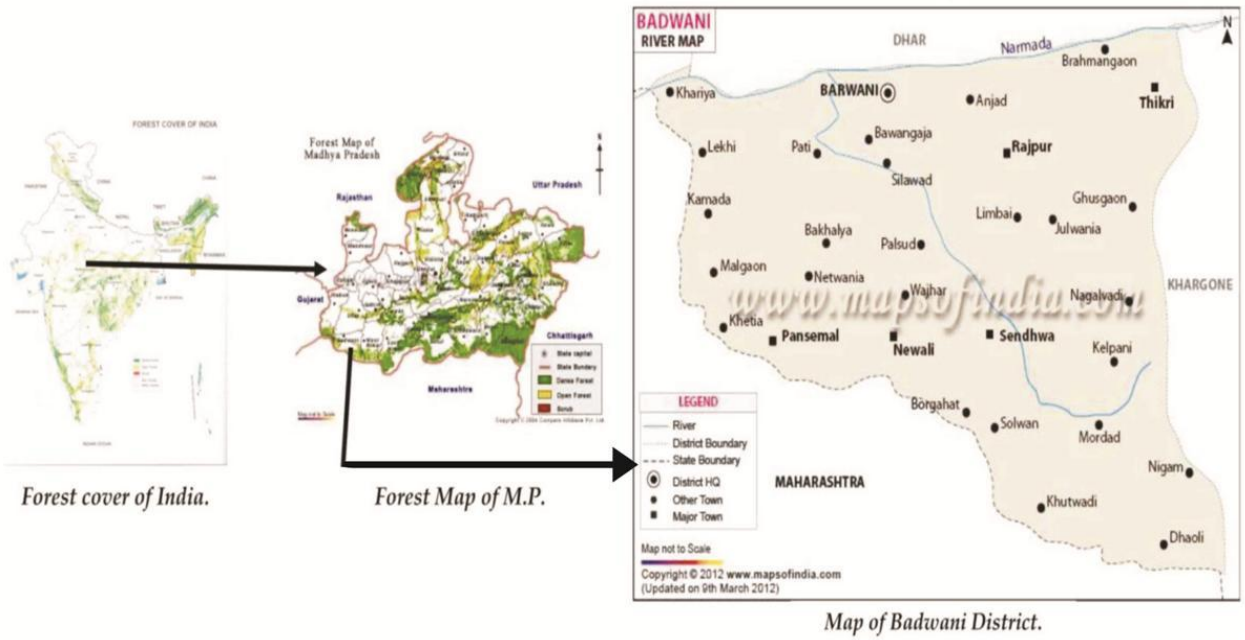

Fig. 1: Map of Badwani District in India.

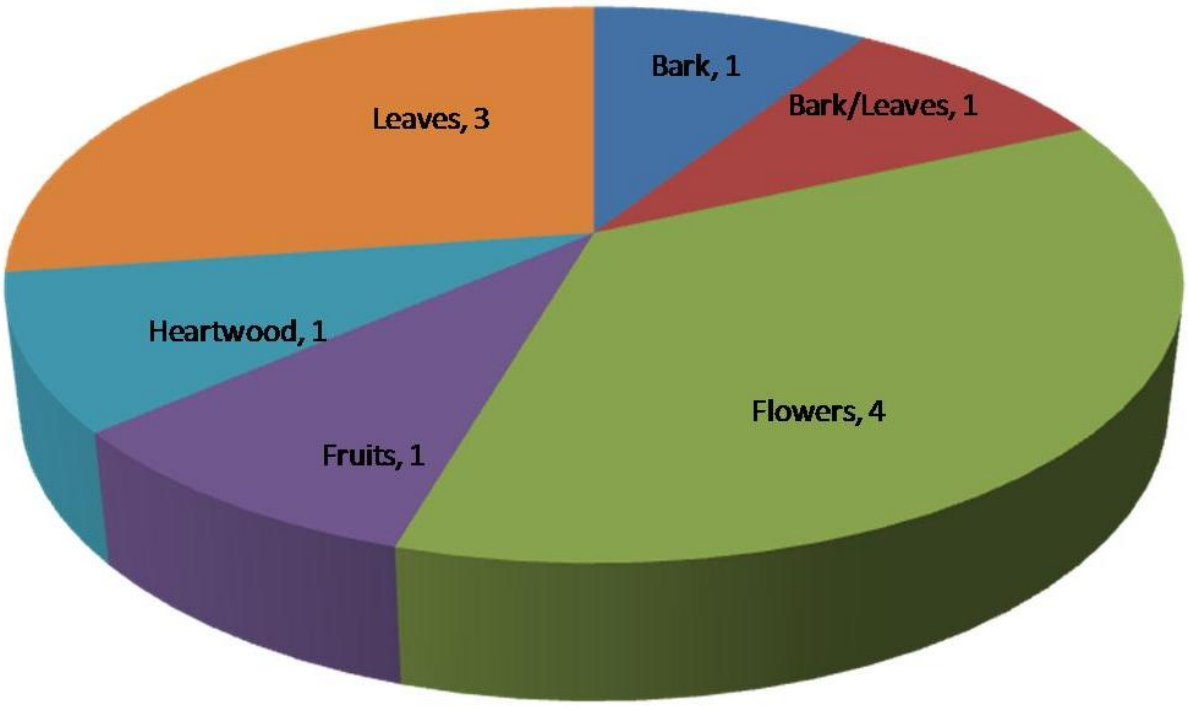

Fig. 2 : Number wise presentation of Dye-Yielding Plants

Fig. 3: Dye Yielding Plants in the study area (a) *Ampelocissus latifolia* (Roxb.) Planch. (b) *Ziziphus xylopyrus* (Retz.) Willd.,(c) *Butea monosperma* (Lam.) Taub., (d) *Indigofera tinctoria* L., (e) *Acacia catechu* (L.f.) Willd.(f) *Nyctanthes arbor-tristis* L.(g) *Wrightia tinctoria* R.Br.(h) *Justicia adhatoda* L.(i) *Woodflordia fruticosa* (L.) Kurz (j) *Mallotus philippensis* (Lam.) Mull.Arg. (k) *Phyllanthus emblica* L.

In terms of plant parts utilized for dye extraction it was found that flowers of 04% has been utilized for dye extraction followed by leaves (03%), bark (03%), fruit (01%) (Fig.2).

CONCLUSIONS

During the survey 11 species are identified as the dye yielding species form Barwani District, MP. These species are used to get the different type of dyes by the local people. Two members of Fabaceae and Euphorbiaceae each yield natural dye, however, other families like Vitaceae, Rhamnaceae, Mimosaceae, Oleaceae, Apocynaceae, Acanthaceae and Lythraceae contribute 01 species each as dye yielding plants from the area.

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