

Diversity, indigenous uses and traditional practices of dye yielding plants in Central Himachal Pradesh, North western Himalaya

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The present paper is an attempt to assess the diversity and document the indigenous uses and traditional practices of dye yielding plants in Central Himachal Pradesh North Western Himalaya. A total of 17 species of dye yielding plants belonging to 13 families and 17 genera were recorded. These species are used to dyeing clothes and other items. Different plant parts were utilized, of which fruit (07 spp.) was used in the majority, followed by flowers (05 spp.); bark (04 spp.) and leaves (03 spp.) Information on indigenous uses and traditional practices was documented with the help of local inhabitants. Natural dye yielding plants have immense significance in the socio-economic and socio-cultural aspects of the inhabitants. The indigenous knowledge of extractions, processing and practices of in situ and ex situ conservation of the species; natural dyes has declined to a great extent. Therefore, to maintain dye yielding plant wealth, awareness among the inhabitants; involvement of local inhabitants and Forest Department about the indigenous uses and traditional practices have been suggested.

Keywords: Central Himachal Pradesh, Conservation, Dye yielding, Ethnic, Indigenous uses, Inhabitants, Traditional practices

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India is rich in plant biodiversity and ranked 11th in the world. The relation between man and plants originated with the prehistoric human civilization. The plants are used not only for maintaining the basic life sustaining needs like food, fuel, shelter, but also for making clothes and natural dyes to fabric clothes¹. Pigment from leaves, fruits, seed, stem, bark, wood and roots were used as dye for textiles and as paint in art and craft. The invention of indigo is the best example and it is most important Indian dye. Natural dyes occupy an important place in human culture and dye yielding plants were probably discovered early through human curiosity, use, reuse and trials^{2,3}. Natural dyes are environmental friendly, hygienic, user friendly and permanent than other colorant. They not only release medicinal properties but also improve the aesthetic value of the product and they are unique and eco-friendly⁴. Recently, interest in the use of natural dyes has been rapidly increasing due to the result of stringent environmental standards imposed by Environmental Board and Pollution Control Board

of many countries in response to toxic and allergic reactions associated with synthetic dyes⁵. Dye constitutes the colored pigments which act as coloring agent for various articles. Himachal Pradesh, one of the pioneer Himalayan states, is a rich repository of natural resources. The major population of the Indian Himalayan Region lives in rural areas and the inhabitants are largely dependent on forest resources for their livelihood. The dependence of humans and livestock on this rich plant diversity is well known phenomenon since time immemorial^{6,7}. In the central Himachal Pradesh, local people obtain natural dyes from plants and use for the various purposes. Keeping in view the importance of dye yielding plants and their indigenous uses and traditional practices, the present paper has been focused to investigate the diversity of dye yielding plants and document their indigenous uses and traditional practices in the Central Himachal Pradesh.

Study Area

The study area comprises of two districts namely Mandi and Hamirpur of Himachal Pradesh. The area lies between latitude 31°13'50"N and longitude

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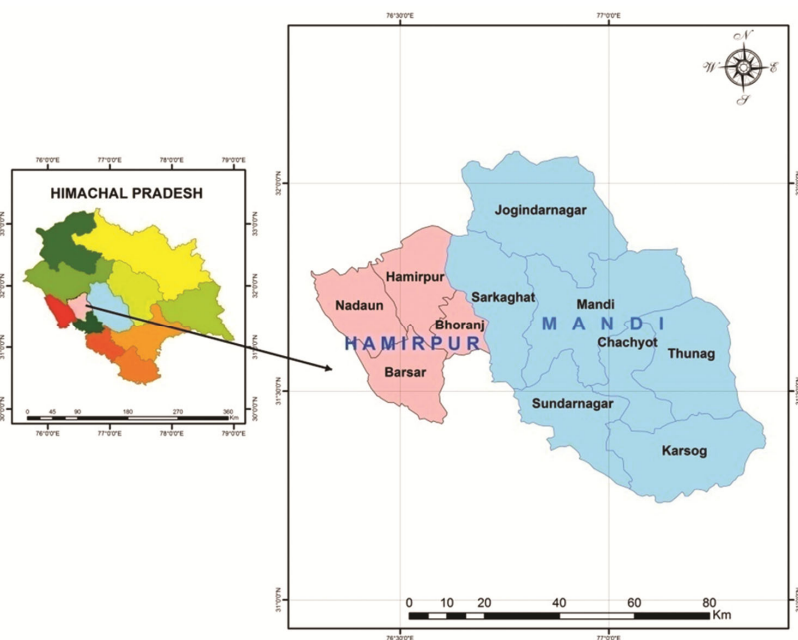


Fig. 1 — Map of the Study area

77°23'15"E and falls largely under the subtropical, temperate, subalpine and alpine regions of the Himachal Pradesh (Fig. 1). The altitude ranges from 800-4,100 m amsl. It is surrounded by two main rivers namely, Beas and Satluj. Due to large altitudes range, diversity of habitats and climate the area supports rich economically important floristic diversity. Climate varies from sub tropical to alpine types. The vegetation comprises sub-tropical, temperate, subalpine and alpine types. The area is inhabited by the diverse caste and communities and they are largely dependent on floristic diversity including dye yielding plants for their sustenance.

Materials and Methods

For the assessment of dye yielding plants, extensive and intensive surveys were conducted in the selected villages along an altitudinal gradient. Local knowledgeable people including local vaidyas were interviewed and information on indigenous uses and traditional practices of dye yielding plants was generated. The interviews were mostly individual. Interviews followed informal method and open ended rather than a strict questionnaire. The languages used while interacting with the informants was the local dialect, Mandiyali as well as Hindi. The samples of dye yielding plants were collected from their natural habitats with the help of a local knowledgeable hired person for further identification. Fresh samples of the species were

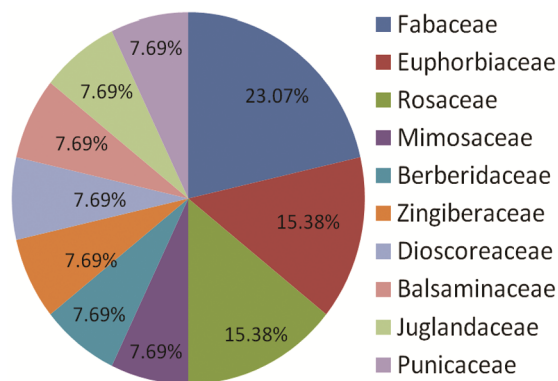


Fig. 2 — Family wise percentage of dye yielding plant parts collected and identified with the help of local and regional floras.^{8,9,10,11}

Results

Species diversity

Total 17 species belonging to 13 families were recorded. These species were commonly used as natural dye by the inhabitant of Central Himachal Pradesh. Fabaceae is found to be dominant with 3 species followed by Euphorbiaceae and Rosaceae with (2 species), each (Fig. 2). The remaining families were represented by having one species, each (Table 1; Photo Plate 1 & Photo Plate 2).

Utilization pattern

Among the plant parts used, fruits were the maximum source of natural dyes contributing

Table 1 — Diversity, utilization pattern, indigenous uses and traditional practices of dye-yielding plants in Central Himachal Pradesh, North Western Himalaya

Taxa	Family	Local name	LF	Part used	Color	Indigenous use and traditional practices
<i>Acacia catechu</i> (L.f.) Willd.	Fabaceae	Khair	T	St,Fr	Dark-brown	Ripened pods are crushed for yielding dye. Dark brown dye is obtained from the heartwood; ripened pods are boiled in water. It is largely used for dyeing cotton and silk clothes.
<i>Albizia lebbek</i> Benth.	Mimosaceae	Sirinh	T	Bk	Red	Bark crushed and powder is made; powder is mixed in hot water and for coloring silk fabrics
<i>Bauhinia purpurea</i> L.	Fabaceae	Karale	T	Fl	Purple	The dye is obtained from the fresh flowers. Fresh petals were boiled in water and applied for dyeing cotton and silk clothes
<i>Berberis lycium</i> Royle	Berberidaceae	Kashmale	Sh	Rt,Fl,Bk	Yellow	Crushed root is boiled in to water for 2-3 hours and yellow dye is obtained used to coloring the clothes and for tanning the leather. It also used for religious purposes
<i>Curcuma domestica</i> Valetton	Zingiberaceae	Jangli Haldi	H	Rh	Yellow	Dried rhizome powder of this plant is used as dyeing for wool, silk and cotton and also used as food colorant ;in the marriage ceremonies used to coloring the religious thread
<i>Dioscorea deltoidea</i> Wall. ex Griseb.	Dioscoreaceae	Sigli-mingli	H	Rh	Brown	Dried rhizome powder is used as dye for dyeing wool
<i>Impatiens balsamina</i> L.	Balsaminaceae	Gulmehndi	H	Fl	Red	The red flowers are used to prepare a red dye for finger nails, as a substitute for henna.
<i>Indigofera heterantha</i> Brandis	Fabaceae		Sh	Lf, fl	Blue	Blue and most important dye from flowers and leaves was extracted in water after fermenting the leaves. The dye is used in coloring wool, cotton and in production of ink. Medicinally, it has cooling sensation when applied on skin.
<i>Juglans regia</i> L.	Juglandaceae	Akrot	T	Fr	Brown	Fresh seeds peel of unripe fruits used for dyeing wool and cotton fabrics.
<i>Mallotus philippensis</i> (Lam.) Mull. Arg.	Euphorbiaceae	Kamal	T	Fl	Red-Orange	Ripe fruits are used for dyeing silk and wool. It is also used for making the "Sindoor".
<i>Phyllanthus emblica</i> L.	Euphorbiaceae	Ambra	T	Bk, Fr	Dark-brown	Fresh fruits and bark are crushed and boiled. The extract is used for dyeing mats, hair, etc.
<i>Pistacia integerrima</i> J. L. Stewart ex Brandis	Anacardiaceae	Kakar singhi	T	Gl	Yellow	Dried powder used for coloring wool yarns
<i>Prinsepia utilis</i> Royle	Rosaceae	Baikhel	Sh	Fr	Blue	The pulp of fruits is used for dyeing the wool and also used for art purposes.
<i>Prunus cerasoides</i> Buch.-Ham. ex D.Don	Rosaceae	Pajja	T	Bk,Fl	Red	Dried bark powder is used for dyeing the mats and ropes.
<i>Punica granatum</i> L.	Punicaceae	Anar	Sh	Fr,Fl	Yellow-Red	Extract of fruit yields yellow dye. Flowers are also used as red dye for coloring clothes.
<i>Tagetes erecta</i> L.	Asteraceae	Genda	H	Fr	Yellow-golden	Flowers are boiled in water for 5-6 hours, resonant is used for dyeing cotton and silk fabrics.
<i>Terminalia chebula</i> Retz.	Combretaceae	Harad	T	Fr	Dark blue	Dried powder of fruit is used coloring the cotton fabrics.

Abbreviation used: Fr=Fruit; Fl=Flower; Bk= Bark; Lf= Leaf; Rh= Rhizome; Rt=Root; Gl= Gall; T=Tree; Sh= Shrub; H=Herb; LF= Life form



Plate 1 — Some important dye yielding plants of Central Himachal Pradesh



Plate 2 — Traditional practices of some important dye yielding plants

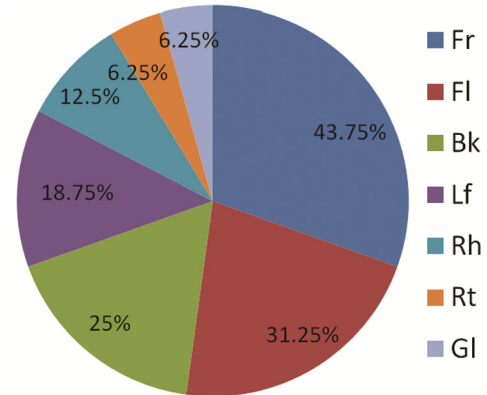


Fig. 3 — Utilization of dye yielding plant parts Abbreviations used: Fr=Fruit; Fl=Flower; Bk= Bark; Lf= Leaf; Rh= Rhizome; Rt= Root and Gl= Gall

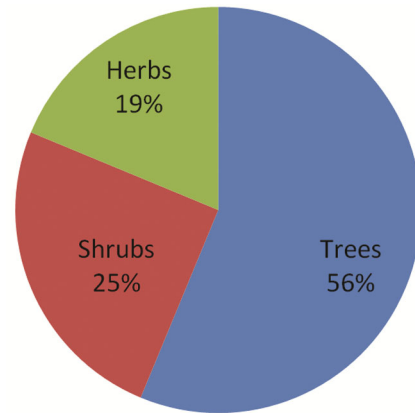


Fig. 4 — Habit preferences of dye yielding plants

43.75%, followed by flowers (31.25%), barks (25%), leaves (18.75%), rhizomes (12.5%), and roots and gall (6.25%) respectively (Fig. 3). The species recorded were mostly trees, which constitute (56.25%) of total species, followed by shrubs (25%) and herbs (18.75%) (Fig. 4).

Discussion

The Himalayan region provides various services to the mankind. Inhabitant of the Himalaya use these plant resources for medicine, fuel, fodder, timber, income generation source, agricultural tools, house building, dye and for various other purposes⁷. Among the provisioning services, the dye yielding plants play an important role in the traditional practices. The present study provides information on the diversity, indigenous uses and traditional practices of the dye yielding plants in Central Himachal Pradesh. Seventeen species belonging to 12 families have been recorded, which are commonly used as natural dye by

the inhabitants. Fabaceae found to be dominant family, followed by Euphorbiaceae. Dye yielding plants are used for dyeing cotton, silk, wool fabrics and also used in many religious ceremonies. Dark brown dye of the *Acacia catechu* is used for dyeing cotton and silk clothes. Dried rhizome powder of *Curcuma domestica* is used as dyeing for wool, silk and cotton and also used as food colorant, in the marriage ceremonies, used for coloring the religious threads; the red flowers of *Impatiens balsamina* are used to prepare a red dye for finger nails, as a substitute for henna. Species are good resources of natural dyes used by local communities for dyeing through indigenous process and techniques. The traditional practice of preparation of dye and their uses have been losing their popularity. It has been observed that the traditional knowledge of dye making is now practiced by older people only. Indigenous knowledge of extraction, processing and practices of using natural dyes has been vanishing rapidly among the new generations. Indigenous knowledge and traditional practices of dye yielding plants is very essential for community based development and eco-friendly products. Therefore, it is essential; to protect and conserve the dye yielding plant resources in their natural habitats; creating awareness among the inhabitants; and involves local inhabitants along with Forest Department for their *ex situ* and *in situ* conservation of these resources.

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