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A Preliminary Study on Dye Yielding Plants of Bhadravathi Taluk, Karnataka

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ABSTRACT

The present study is based on the extensive survey on dye yielding plant resources of Bhadravathi taluk, Karnataka during 2009-2010. The study reports on 29 dye yielding plants belonging to 26 genera and 19 families, along with their habit and parts used. Among plant families Fabaceae is dominant with 5 species followed by Leguminosae, Lythraceae, Euphorbiaceae, Lamiaceae, Apocynaceae and Anacardiaceae with 2 species each. The aim of the present study has been to investigate the availability of dye-yielding plant species in the study area.

Keywords: Dye Yielding Plants, Bhadravathi Taluk, Traditional Knowledge.

I. INTRODUCTION

The dye yielding plants have different medicinal and economic values. It has also been known that the natural dyes are not harmful and eco-friendly. It is a matter of concern that the indigenous knowledge of extraction, processing and practice of using and the proper utilization of natural dyes has now diminished due to easy availability of economically cheaper synthetic dyes. It is extremely essential that proper documentation and measures of conservation be undertaken for to preserve these natural dye yielding plants otherwise there would immense loss of valuable information in nature forever (Shobhit Kumar Srivastava et al., 2014). Natural dye plants and dyes produced by these plants have a very good demand in the national and international markets now a days and use of such plants/herbs for dyeing our cloths is as old as our history. Importance of Natural dyeing industry may be studied as they are fairly non-polluting except the toxic chrome mordant, automatically harmonizing and rare color ideas (Lokhol Singh et al., 2015).

The main aim of the present investigation has been to know the diversity of natural dye-yielding plant species in Bhadravathi taluk, Karnataka and gather information on traditional knowledge system by the rural peoples. This is the first report from this area regarding dye yielding plants.

II.MATERIAL AND METHODS

Bhadravati is an industrial city and taluk in the Shimoga District of Karnataka state, India It is situated at a distance of about 20 kilometres from the district headquarters Shimoga. *Bhadravathi*, is located at Latitude-13° 52' N and Longitude- 75° 40' E. Figure 1 shows the location map of the study area.

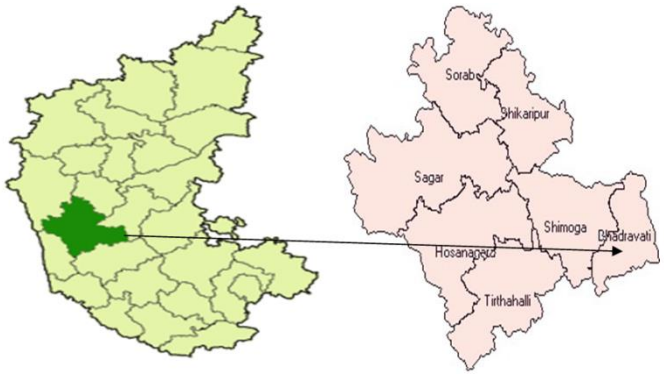

Figure 1: Location map of the study area (source: kssidc.in; www.veethi.com; en.wikipedia.org)

Extensive field surveys have been made during 2009–2010 to gather data on various aspects of dye yielding plants, along with their ethno-botanical studies. This information was also gathered in different villages of Bhadravathi taluk, Karnataka. The methodology for collection of plant samples of dye yielding plants have been adopted as per standard procedure (Jain and Rao, 1997; Singh and Subramanyam,2008; Sharma Antima et al., 2012). The collected plant specimens were identified with the help of recent and relevant floras and confirmed from the authentic specimens. Plant specimens with their botanical names with family, habit and dye yielding plant part used are depicted in Table 1.

Table 1 : List of Dye yielding plants in the study area

S.No	Scientific Name	Family	Habit	Dye yielding Plant parts
1	*Acacia nilotica*	Leguminosae	Tree	Fruit rind
2	*Acacia catechu*	Leguminosae	Tree	Bark/wood
3	*Achyranthes aspera*	Amaranthaceae	Herb	Entire plant
4	*Aegle marmelos*	Rutaceae	Tree	Fruit rind
5	*Anacardium occidentale*	Anacardiaceae	Tree	Pericarp
6	*Annona squamosa*	Annonaceae	Tree	Fruit
7	*Azadirachta indica*	Meliaceae	Tree	Leaves
8	*Butea monosperma*	Fabaceae	Tree	Flowers
9	*Bauhinia purpurea*	Fabaceae	Tree	Bark
10	*Bougainvillea glabra*	Nyctaginaceae	Shrub	Flowers
11	*Cassia fistula*	Fabaceae	Tree	Bark/Fruit
12	*Cassia tora*	Fabaceae	Herb	Seeds
13	*Commelina sp.*	Commelinaceae	Herb	Flower
14	*Delonix regia*	Fabaceae	Tree	Flower
15	*Euphorbia tirucalli*	Euphorbiaceae	Shrub	wood
16	*Jatropha curcus*	Euphorbiaceae	Shrub	Bark/Leaf
17	*Lawsonia inermis*	Lythraceae	Shrub	Leaves
18	*Michelia champaca*	Magnoliaceae	Tree	Wood
19	*Mangifera indica*	Anacardiaceae	Tree	Bark/Leaves
20	*Morus alba*	Moraceae	Tree	Leaves
21	*Nerium indicum*	Apocynaceae	Shrub	Root/Bark
22	*Nerium oleander*	Apocynaceae	Shrub	Root/Bark
23	*Ocimum sanctum*	Lamiaceae	Herb	Leaves
24	*Oxalis sp.*	Oxalidaceae	Herb	Leaf
25	*Phyllanthus emblica*	Phyllanthaceae	Tree	Fruit/Bark
26	*Punica granatum*	Lythraceae	Tree	Flower/Fruit
27	*Solanum nigrum*	Solanaceae	Herb	Seed
28	*Tectona grandis*	Lamiaceae	Tree	Leaf/Bark
29	*Terminalia chebula*	Combretaceae	Tree	Root/Bark

III.RESULTS AND DISCUSSION

In this study we have recorded 29 dye yielding plants belonging to 26 genera and 19 families, along with their habit and parts used. Among plant family Fabaceae is dominant with 5 species followed by Leguminosae, Lythraceae, Euphorbiaceae, Lamiaceae, Apocynaceae and Anacardiaceae with 2 species each (Figure 2). In the current study, 17 trees and 06 each of herbs and shrubs are recorded (Figure 3).

Lawsonia inermis plant used as hair-care dye. A few decades back ink was prepared from the local resources. Commonly used plants yielding ink dye include *Acacia catechu*, *A. nilotica*, *Punica granatum* and *Terminalia chebula* (Sharma Antima et al., 2012).

Mondal (2012) attempted a study of folk use of dye yielding plants and also its medicinal value from lateritic zone of West Bengal. They reported the traditional art of dying using plant products. Sharma Antima et al. (2012) reported dye plants of Garhwal Himalaya. The study reports on 46 dye yielding plants belonging to 33 families.

Gokhale et al., (2004) reported about 500 dye yielding plant types from indigenous species from India. Das and Biswajit Sutradhar et al.(2015) made an attempt at Tripura, Northeast India dye yielding plants and documented 35 genera and 26 families along with their vernacular name, habit, parts. Bosco Lawarence et al.(2015) recorded 49 species and 27 families of dye yielding plants used by the Kani tribes of Ponmudi hill . 5 species from Fabaceae, 4 species from Melastomaceae, 2 each from Acanthaceae, Asteraceae, Euphorbiaceae,

Lythraceae, Mimosaceae, Polygonaceae and Zingeberaceae (Bosco Lawarence et al.,2015).

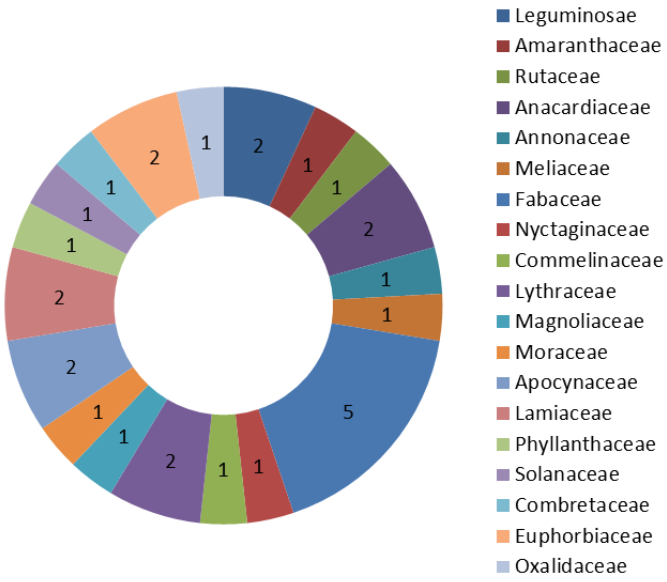

Figure 2: Number of dye yielding plants in each family

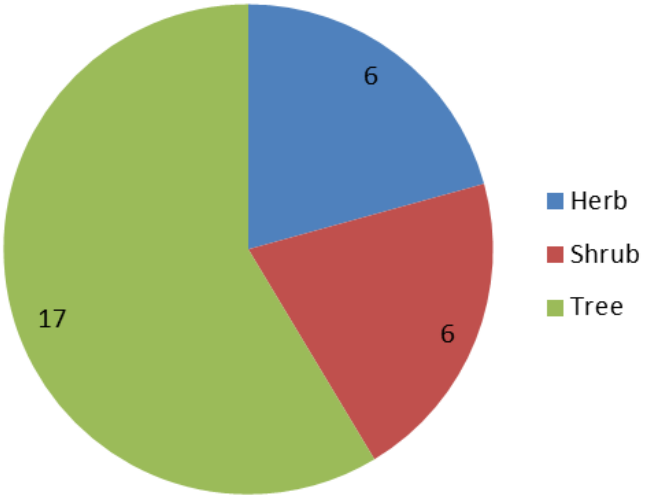

Figure 3: Number of Herbs, Shrubs and Trees in the study area during 2009-10.

There has always been a sporadic reference on their uses and importance of dye yielding plants and hence the traditional practice of preparation of dye and their uses have been losing their popularity. This has been due to the availability of cheap chemical dyes. Indigenous knowledge of extraction, processing and practice of using of natural dyes has done away to a great extent among the new generations of the ethnic groups and only a few of them still practice till today. There is a need for a systematic approach with scientific inputs which would in turn help in conserving the important plant resources (Shobhit Kumar Srivastava et al., 2014).

II. CONCLUSION

Natural dyes are derived from plants, animals, insects and the minerals. A wide range of climatic zones and latitude in India has resulted in a rich biodiversity and thus the many sources of natural dyes. There are about 200 dye yielding plants found in India (http://www.dsir.gov.in/reports/tmreps/vegdye.pdf). Commercialization of the natural dyes used by the rural population through systematic and scientific approach with identification of resources, extraction, purifications, chemical structure and promotion of use of natural dyes will bring then in to the main stream of society (Bosco Lawarence et al., 2015). Natural dyes from plants are ecofriendly in nature.

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