



STUDIES ON PLANT SPECIES USED BY TRIBAL COMMUNITIES OF KALSUBAI AND BHIMASHANKAR FORESTS, MAHARASHTRA

B. S. Deshmukh

Agasti Arts, Commerce and D. R. Science College Akole- 422601

Sharayu D. Sathe*

Dept of Botany Abasaheb Garware College, Karve Road, Pune - 4
*Corresponding Author

ABSTRACT

The paper deals with the ethno-medico-botany of plant species of Kalsubai and Bhimashankar forests, North West parts of Ahmednagar and Pune district, situated in Sahyadri ranges of Western Ghats region in Maharashtra. The forests are moist deciduous including some evergreen patches and have great potentiality both from economic and botanical point of view. A floristic survey in the tribal area of Kalsubai (361.71 sq. km.) and Bhimashankar (130.78 sq. km.) forests was conducted over the period of last two years to assess the potentiality of plant resources for modern treatments. About 78 plant species from different families used by the tribals for their economic as well as medicinal uses in curing various diseases have been enumerated. Highly represented families were Amaranthaceae, Apocynaceae, Asclepidaceae, Bignoniaceae, Combretaceae, Mimosaceae, Moraceae, Papilionaceae and Verbinaceae. The information provided in this paper on ethno-botanical and medicinal uses of plants is based on the exhaustive interviews with local physicians practising indigenous system of medicine, village headmen, vaidya and elder persons of various tribal folks/groups (Jain, 1995). Investigation revealed that, the traditional healers and the inhabitants use several plants to treat diseases like diabetes, asthma, and malaria and associated complications. Information on economic and medicinal utilization of plant species including their family, scientific name local name and plant parts used has been presented.

KEYWORDS : Ethno-medico-botany, Kalsubai and Bhimashankar forests, Maharashtra.

INTRODUCTION:

India with an area of about 3.287 million sq. km and a coastline of over 7500 km is the second largest country in Asia and seventh in the world. India is one of the 12 mega diversity centers ranking third in Asia and eleventh in the world. About 33 per cent of Angiosperm occurring in India or about 28 per cent of total Indian flora is endemic to the country (Singh & Singh, 2002). Out of 25 global biodiversity hotspot in the world, 3 are in India. The Western Ghats of India is ranked fifth in the world in terms of potential products.^{1,2} However the Western Ghats today is one of the most significance repositories of biodiversity of India. The components of these resources constitute the basic raw material, which was used by peoples from the ancients. The peoples of different ethnic groups live in the area and mainly depend on forest for their shelter, housing material, food, fuel, fiber and feed.^{3,4}

The forests of Kalsubai (361.71 sq. km.) and Bhimashankar (130.78 sq. km.) are unique and rich in biodiversity. These forests are falls in Western Ghats forests, situated to the North West part of Ahmednagar and Pune district respectively. The study has been carried out to focus the existing floral diversity with special reference to its economic and medicinal values of Kalsubai and Bhimashankar forests pockets.⁵

Kalsubai forest is the part of Kalsubai Harishchandragad wildlife sanctuary placed among the Sahyadri hill ranges of Maharashtra. The Kalasubai peak has an altitude of 1646m and is the highest peak in Western Ghats. Bhimashankar forest is situated in Ambegaon and Khed Talukas of Pune district.^{7,8} The places are very rich in natural vegetation cover and abound in various species of plants and trees. Mostly the vegetation is southern moist mixed deciduous and in places that are near to the western coast the vegetation is semi deciduous shrub savanna and semi evergreen type.^{6,7} Some of the common species of trees found here are Aashind, Gulchavi, Parjambhual, Hirda, Bahava, Beheda, Kudal, Avali, Jambhul, Siras, Chandawa, Lokhandi, Kharvel etc. There are various bushes around like Dhaiti, Mandar, Chilhar, Ber, Rametha, Kadipatta, Karwand etc. In some areas large patches of different species of grass occurs.^{9,10} Some of the grasses found here are Pawanya, Harali, Marvel, Surad, Dongari etc. The biodiversity of these areas has been retained as it was preserved as a cluster of sacred groves for

generation. The inhabitants are primarily tribal communities, namely Mahadev Kolis, Thakars, Ramoshies, Katkaris and Dhangars. The tribals have coexisted with nature for centuries in quiet harmony with rich traditional knowledge and cultural life. The forest resource plays an important role in the livelihood of these communities. Significant work on the field of ethno-botany has been done in past years in the study area. Although much has documented on the ethno-medicinal and floristic aspects of plants of these areas. How ever there is not even a single concrete report about the ethno-medico-botany. Keeping this in view, the present study was conducted as the first ever attempt from the region to explore and identify the wild plant resources, to record the indigenous traditional knowledge of utilization.

METHODOLOGY:

Field trips were conducted in the study area over the period of last two years and the ethno botanical data was documented. Local names and uses of ethno-medicinal and economically important plants were collected through interviewing village headmen, sarpanch, vaidya and elder persons. *Mahadev Kolis, Thakars, Katkaris, Ramoshies* tribes were interviewed. The data were collected according to the methodology suggested by Jain (1995). The ethno-botanical data (local name, mode of preparation) were collected through questionnaire; interviews and discussions among the tribal people in their local language. Plants were identified and confirmed with standard floras of Cooke (1908), Pradhan and Singh (1999), Singh and Karthikeyn (2000), Singh et.al. (2001), Almeda (2003), Yadav (2002) and Bhagat et al. (2008). The entire work was carried out as per prescribed methodology and the systematic position of each recorded taxa within the study area was confirmed by literature review.

RESULTS:

A total of 78 ethno-botanically important plant species belonging to 65 genera and 41 families have been reported from both the study area. Highly represented families were Amaranthaceae, Apocynaceae, Asclepidaceae, Bignoniaceae, Combretaceae, Mimosaceae, Moraceae, Papilionaceae and Verbinaceae. Data collected on the ethno-medico-botanical survey from two areas has been summarized in Table 1.

Table No. 1: List of Economics and Medicinal uses plants by local tribal of Kalsubai and Bhimashankar forests.

| Local/Tribal Name | Botanical Name | Family | Part used Medicinal and Economical use |
|-------------------|--|---------------|---|
| Gunj | <i>Abrus precatorius</i> L. | Papilionaceae | Leaves: edible, used in medicine |
| Mudra | <i>Abutilon indicum</i> (L.) Sweet. | Malvaceae | Leaf, Flower: Boils ulcer |
| Khair | <i>Acacia catachue</i> Willd. | Mimosaceae | Wood: Fuel, Agricultural implements, dyeing |
| Bhabal | <i>Acacia nilotica</i> (L.) Willd. | Mimosaceae | Wood, Bark, Pod: Agricultural implements, fuel, fodder, gum, tanning. |
| Aghada | <i>Achyranthes aspera</i> L. | Amaranthaceae | Root, Leaf: Wound healing, scorpion bite |
| Gulchai | <i>Actinodaphne angustifolia</i> Nees in Wall. | Lauraceae | Wood, leaves: Construction, roofing, fuel |
| Adulsa | <i>Adhatoda vasica</i> Nees. | Acanthaceae | Leaves: medicinal, cough syrup. |
| Haldu | <i>Adina cordifolia</i> Roxb. | Papilionaceae | Wood: Furniture, Construction, agricultural implements, fuel |
| Bel | <i>Aegel marmelos</i> (L.) Corr. | Rutaceae | Fruits, leaves: medicinal, food, leaves offering to God |
| Ghaypat | <i>Agave Americana</i> L. | Agavaceae | Leaf: Fiber, Rope, packing material. |
| Shirish | <i>Albizia lebbeck</i> (L.) Bth. | Malvaceae | Wood, leaf: furniture, fuel, fodder |
| Kelai | <i>Albizia procera</i> (Roxb.) Bth | Mimosaceae | Wood, bark, leaf: Rice pounder, Carts, Fish poison, Tanning, dyeing, hair wash |
| Korpad | <i>Aloe vera</i> (L.) Burm | Liliaceae | Leaves: Wound healng, |
| Davana | <i>Anogeissus latifolia</i> Roxb. | Combretaceae | Wood, bark: Cart axle, charcoal, tannin |
| Badadha | <i>Arisaema murrayi</i> Hook. | Araceae | Young leaves: vegetable, |
| Bamboo | <i>Bambusa arundinacea</i> (Retz.) Willd. | Papilionaceae | Wood: House Implements, Toys, Mats, Ornamental, Hedge |
| Punarnava | <i>Boerhaavia diffusa</i> Hook. | Nyctaginaceae | Roots: Medicine, astringent |
| Katesawar | <i>Bombax ceiba</i> L. | Bombacaceae | Wood, cotton: Packing case, stuffing pillows, curbs, Urinary trouble. |
| Aasind | <i>Bridelia retusa</i> (L.) spreng. | Euphorbiaceae | Fruits: edible, Pickles, sarbat |
| Palas | <i>Butea monosperma</i> (Lam.) Taub | Papilionaceae | Seed, flower, leaf, wood: Orange dye, plates, cups, fuel, |
| Karwand | <i>Carissa congesta</i> Wt. | Apocynaceae | Fruits, Flower: edible, pickles, chatniees, flowers in religious ceremonies. |
| Sinder makad | <i>Carraluma fimbriata</i> | Asclepidaceae | Stem: Edible, vegetables, suppress hunger |
| Buscut | <i>Cassine guauca</i> (Rott.) Ktre. | Celastraceae | Wood: fuel, fodder, proofing |
| Haman | <i>Ceropegia bulbosa</i> | Asclepidaceae | Tubers: edible, vegetable |
| Haman | <i>Ceropegia occulta</i> | Asclepidaceae | Tubers: edible, vegetable |
| Safed Musali | <i>Chlorophytum tuberosum</i> | Liliaceae | Tubers: Medicinal |
| Morwel | <i>Clematis gouriana</i> Rox.Ex.Doc. | Ranunculaceae | Leaves: leprosy and Fever |
| Bhokar | <i>Cordia dichotoma</i> Forst. | Ehretiaceae | Wood, flower, fruits: Fruits edible, fuel, pickles, raw gum, flowers in dysentery |
| Piway, Peva. | <i>Costus speciosus</i> (Koen.) J. | Zingiberaceae | Tubers: Ayurvedic medicine |
| Kali musali | <i>Curculues orchiodes</i> Gaerth. | Amarylidaceae | Tubers: in medicine |
| Sisam | <i>Dalbergia latifolia</i> Roxb. | Papilionaceae | Wood, Bark: Agricultural implements, construction, bark in fever |
| Bambu | <i>Dendrocalamus strictus</i> (Roxb.) Nees. | Poaceae | Wood: agricultural and house implements, Toys, Mats, baskets, ornamental |
| Chai | <i>Dioscorea pentaphylla</i> | Dioscoriaceae | Tubers: edible, vegetable, nutritious |
| Tembhurni | <i>Diospyros peregrina</i> (Gaertn.) Gurke | Ebenaceae | Wood, leaf, flower: construction on hunts, bodis, medicinal |
| Shivlingi | <i>Diplocyclos palmatus</i> L. | Cucurbitaceae | Fruits: medicinal |
| Aavala | <i>Embllica officinalis</i> Gaertn. | Euphorbiaceae | Wood, Fruits: fuel, edible, pickles, sarbat, supari |
| Pangara | <i>Erythrina suberosa</i> L. | Papilionaceae | Flowers: Dye |
| Piper/Pimpri | <i>Ficus amplissima</i> J.E.sm. | Moraceae | Leaves, Bark: Proofing, Packing, Rope |
| Umbar | <i>Ficus racemosa</i> L. | Moraceae | Wood, latex: fuel, stomach disease, wood healing |
| Pimpal | <i>Ficus religiosa</i> L. | Moraceae | Root, Bark: Skin disease, cough, cold |
| Kallavi | <i>Gloriosa superba</i> L. | Liliaceae | |
| Shivan | <i>Gmelina arborea</i> L. | Verbinaceae | Wood, leaf: fodder, furniture, Doors, Toys, ornamentals, leaf in Ulcer |
| Atai | <i>Helicteres isora</i> L. | Sterculiaceae | Bark, Root, Pod: Rope making, Intestinal disorder. |
| Anantvel | <i>Hemidesmus indicus</i> (L.) Schult. | Periplocaceae | Root: Medicinal, fever |
| Pandhara kuda. | <i>Holarrhena antidysenterica</i> (Buch-Ham.) D. Wall. | Apocynaceae | Wood, leaves: proofing, fuel |
| Bondara | <i>Lagerstroemia parviflora</i> Roxb. | Lythraceae | Wood: construction, boat, tools, fuel. |

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|---------|--------------------------------------|-------------|--|
| Ghaneri | <i>Lantana camara</i> L. | Lamiaceae | Stem: hedge, protection, supporting material |
| Deepmal | <i>Lavandula bipinnata</i> O.ktze. | Lamiaceae | Leaves: essence |
| Dhota | <i>Lobelia nicotianaefolia</i> Roth. | Lobeliaceae | Leaves: medicinal |

DISCUSSION :

Tribal people use different plant parts for various ethno-botanical purposes. From which about 80% plant species are being used for its wood making implements, house construction, cart making, furniture, firewood, rafters, packing cases, ropes, walking sticks etc. about 55% plant species are being used for medicinal purposes. Sometimes pests is also prepared from plant parts and applied to cure various skin diseases, inflammation, swellings, insect bites, snake bites etc.^{11,12} The usage of plant part like Bulbs, Flowers, Fruits, Leaf, Seeds, Pseudo Stem, Tubers or whole plant body were observed. From the data, it could be inferred that for more number of remedies fresh leaf materials (36%) is used followed by seeds (26%) and fruits (16%). However, plant parts like Bulb (3%) and tuber (3%) were less frequently used by the people in the study area. Medicinally important plant species of *Phyllanthus emblica* (Amla), *Terminalia chebula* (Hirda) *Terminalia bellirica* (Beheda) are sold to market.^{13,14}

The people mostly live in hamlets or hunts, which are mostly made by using plants and wood. Sometimes walls are made with bamboos and mud. *Tectona grandis* (Sag) was found to be the major constructing material for hunts and covered with leaves and branches of *Butea monosperma* (palas), *Terminalia tomentosa* (Sadada), and *Diospyros peregrina* (Tembuni). Wood produce is used to prepare furniture, agriculture implements, house construction and preparation of crafts. Fuel wood is one of the major components and a source of fuel. Along with wood dried cow dung cake and charcoals are also used as fuel.^{15,16} Major plants used as wood are *Terminalia tomentosa*, *Tectona grandis*, *Mitragayna parviflora*, *Mimosa umbellata*, *Madhuca indica* etc. during flowering season, flowers of *Madhuca indica* were collected fermented for liquor preparation and sold in nearby market. Leaves of *Butea monosperma* are used for making plates and bowls. Orange colored dye is extracted from flowers. *Bauhinia racemosa* leaves are used for making bidis.

The people of the Kalsubai and Bhimashankar are purely forest dependant and the live stock is the major economic source and an integral part of the traditional tribal livelihood. Now a day's small improvement occurs in their day to day's habits and life style. Cultivated crops like Wheat, Paddy, Cereals and pulses are main crops. Paddy is the main crop. Some wild edible fruits include *Mangifera indica*, *Zyzyphus glabrata*, *Carrisa congesta*, *Diospyros peregrina*, *Elaeagnus conferta*, *Limonia acidissima*, *Meyna laxiflora*, *Grewia abutilifolia* etc. used as food and in preparation of processed products.^{15,16}

The present investigation reveals the significance of plant species used by tribal folk of Kalsubai and Bhimashankar forests. The investigations will understand the current situation of community structure, cultivated and wild plant species. It will help in evaluating in evaluating the commonly used plant species by tribal for economic utilization like construction material, cash crops, making agricultural implements, and also in food, fodder, fiber, fuel etc.

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