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### Full Length Research Paper

## Studies of Ethno-medicinal Plants Conservation and Biodiversity Monitoring Sacred Groves as Indicators

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### ARTICLE DETAILS

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### ABSTRACT

Sacred groves are patches of the pristine forest that help to conserve valuable biodiversity at regional as well as local level. The UNESCO (1996) defined sacred groves as an area of natural vegetation through local taboos and sanctions and are a sign of spiritual and ecological value. Another definition consider sacred groves as biological heritage and system that has helped to preserve representative genetic resources existing in the surrounding regions for many generations Sacred groves are present in many parts of the world from Japan to Kenya to Mexico even Australia (Elkin 1964). Such sacred sites are common in south-East Asia and pre-dominant in China (Shengji Pei, 1991). There are more than 17,000 known sacred groves, acquired about 1000 sq km. of Indian geographic area, in different parts of India. On one side these groves are saved from biotic factors like fire, grazing, lopping, felling etc because of the customs connected with worship of sylvan deities, traditional beliefs and legends, on other side, these last refuge of regional biodiversity and habitats of endemic and indigenous plants, animals, birds, reptiles, insects and other life forms like microorganisms are really endangered and is under constant threat in today's urbanization and modernization ahead. This threat is more to ethnomedicinal plants species than to other due to uninterrupted uprooting, scrapping and scratching of those species for ready witted earnings of the aborigines through brokers and factors. That is why there is an urgent need to documented monitor the existing sacred groves from biological and socio cultural perspective.

### 1. Introduction

Sacred groves are patches of the pristine forest that help to conserve valuable biodiversity at regional as well as local level. The UNESCO (1996) defined sacred groves as an area of natural vegetation through local taboos and sanctions and are a sign of spiritual and ecological value. Another definition consider sacred groves as biological heritage and system that has helped to preserve representative genetic resources existing in the surrounding regions for many generations Sacred groves are present in many parts of the world from Japan to Kenya to Mexico even Australia (Elkin 1964). Such sacred sites are common in south-East Asia and pre-dominant in China (Shengji Pei, 1991). There are more than 17,000 known sacred groves, acquired about 1000 sq km. of Indian geographic area, in different parts of India. On one side these groves are saved from biotic factors like fire, grazing, lopping, felling etc because of the customs connected with worship of sylvan deities, traditional beliefs and legends, on other side, these last refuge of regional biodiversity and habitats of endemic and indigenous plants, animals, birds, reptiles, insects and other life forms like microorganisms are really endangered and is under constant threat in today's urbanization and modernization ahead. This threat is more to ethnomedicinal plants species than to other due to uninterrupted uprooting, scrapping and scratching of those species for ready witted earnings of the aborigines through brokers and factors. That is why there is an urgent need to documented monitor the existing sacred groves from biological and socio cultural perspective. India is a land of diverse natural resources. It is also a country with the strongest traditions of nature conservation anywhere in the world. Since time immemorial, conservation of

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natural resources has been an integral aspect of many indigenous communities all over the world in general and India in particular. It is true that India has suffered an almost unabated devastation of its natural biological heritage, and much of what remains has been preserved through the ages because of a host of conservation-oriented sociocultural and religious traditions. One such significant tradition of nature conservation is that of dedicating patches of forests or groves to some deities and spirits by the local people, both tribals and non-tribals. Such forest pockets, referred to as sacred groves, are more or less small to large chunk of traditionally preserved near-virgin forests maintained through people's participation. And folklores play a significant role in confirming the beliefs associated with the sacred groves. Though most of the indigenous people are illiterate, they have scrupulously nurtured their traditional customs, rituals, ceremonies and a way of forest life through folk beliefs with great fervour.

Although named differently in different states of India and managed by local people for various reasons, all sacred forests are islands of biodiversity protecting a good number of plant and animal species including some rare, threatened and endemic taxa. Sacred groves, in general, are repositories and nurseries of many of the local ayurvedic, unani, tribal and other folk medicines which are the original sources that slowly entered into the modern medicines after careful screening. Protection of a large number of medicinal plants in sacred forests of different parts of India are some of the well documented studies (Vartak et al., 1987; Bhakat and Pandit, 2003; 2004; Bhandary and Chandrasekhar, 2003; Pandit and Bhakat, 2007). With this realisation, the recent upsurge of interests in studying sacred groves vis-a-vis medicinal plants has not only established the topic as one of ecological significance, but this tradition of nature conservation based on socio-cultural grounds has got a new-found value as well. Keeping this in mind, this article provides a glimpse into the phenomenon of sacred groves highlighting how human values, norms, social practices and ethics help preserve medicinal plants in tribal areas of West Midnapore district in West Bengal.

## 2. Materials and methods

With reference context the materials are the ethnic the district of Davangere the sacred groves Per groups therewith, the ethnic groups therewith, and the ethno-medicinal plants therefore.

### 2.1 Study area

Certain sacred landscapes in the districts of Davangere of the State of Karnataka in India are studied for knowing their role in ethno-botanical plants conservation and biodiversity monitoring. The district is under the latitude 14.25° N, longitude 75°-67° E. acquire an area of 6167.18 sq km. This is an archaic gnesis of Chhota Nagpur plateau having undulating topography. The place has a general monotony of Tropical Dry Deciduous 'Types' monsoon vegetation. The vegetational belt is paleotropical. Total forest vegetation is 119921.94 hectare (Anonymous 2003). Today the forest of this area have been depleted so much that they need protection, conservation and afforestation. Even some pockets of almost climax vegetation, preserved on religious grounds as sacred groves in remote tribal areas, become endangered due to loss of traditional lores and beliefs (Basu 2000).

Till now, 42 sacred groves form the forested tract of the district of Davangere, covering a sum total of 1,59,533 m<sup>2</sup> areas are studied for installing its sustenance. As yet computed, under this groves aboriginal trees populations are 3414, tree species are 74. Others species are as shrubs 40, herbs 52, lianes 05, climbers 14, epiphytes 02, parasites 02 and ferns are 02. Total numbers of species are 191, of which ferns are 02, dicots 171, monocots 18. Individual areas of sacred groves are varying from 133m<sup>2</sup> to 35,000m<sup>2</sup>, altitudinal ranges vary- ing 200m to 600 m, aboriginal trees population varying 04 to 340. Approximate ages of the groves are varying from 010 to 410 years. Aboriginal trees are mainly the species of *Diospyrosexsculpta*, *Diospyros montana*, *Tamarindus indica*, *Bombax ceiba*, *Ficus bengalensis*, *Haldinacordifolia*, *Schleichera oleosa*, *Terminalia arjuna*, *Terminalia crenulata*. Their heights are varying within 10.00 to 32.22 m and circumference measuring 1.52 to 12.19m.

Ethnic groups religiously interceding are like *Banjars*, *Lamanis Kurabas*, *Kadukuruba* *Vokkaligas* *Lingayath* *Talararas* *Bovis*. Total population of the district is 21,35,233. Including and other back words ethnic races are 60% of the total population. The total 191 species marked in sacred groves of which 71 species are regularly used by the tribe as ethnomedicine. And, of which 9 plants are often either uprooted or scrapped or scooped by the tribe for regular earnings, trading through brokers and factors. Only such vulnerable species which shall have to come in lower risk are mentioned hereupon.

### 2.2 Sources of data

Local aborigines are the key individuals for accurate data collection and analysis. Their perspective, experience, and waymark are the step and starting in analysis of the groves for conservation and monitoring. Extensive field trips were undertaken during the years of 2022 -2023 for collecting ethnobotanical information of the plants accustomed to tribal. Local herbal doctors and tribal women were interviewed for getting information of the traditional medicinal uses of plants. Plants were identified taxonomically with the help of local floras (Hooker, 1872-1897, Saldhans 1903, Haines, 1921- 1925). The informative factual were also verified with the available literature (Bennet, 1987, Jain, 1991).

### 3. Results:

It includes 9 plants whose ethnomedicinal importance has not been reported so far. Plants are arranged in alphabetical order, each one by its correct botanical name, family as well as local name, habit, parts used, mode of preparation. Administration and combination with other plants in parenthesis.

**1 *Costus speciosus* (Koen.) Sm., Zingiberaceae, Keu,** Rhizomatous herb. Rhizome of this plant is mixed in proportion to root of *Gentianastipitata* (*Nilkantha*) and *Polygala arvensis* (*Rali*), crushed and liquefy in water, given cup amount orally in morning by day for 7-10 days for relieving chronic cold and cough.

**2 *Curcuma aromatica* Salisb., Zingiberaceae, Banhaldi,** Rhizomatous herb. In case of puerperal fever of women they give orally an astringent tonic prepared from roots of *Achyranthes aspera* (*Apang*), *Clerodendrum indicum* (*Barapar*), *Costus speciosus* (Keu) and root of this plant along with whole plant of *Hedyotis corymbosa* (*Khetpapra*), given in cup amount by day for 15 days or more depending upon impunity of the patient.

**3 *Glorias superba* L. Liliaceae, Languli-lat,** Scrambling herb Rootstock of this plant is pounded and smear upon lower part of abdomen of a parturient women for facile delivery. Clotted blood from womb of woman caused to percolate by smearing a lump upon bellied area. This lump is pounded from bulb of *Drimia indica* (*Banpiyaj*), bark of *Santalum album* (*Swet Chandan*) and rootstock of this plant.

**4 *Pueraria tuberosa* (Willd.) DC., Fabaceae, Pataldingla,** woody climber. In dryness of summer and in irritable condition when unexpected blood urination takes place and even in dysuria with burning sensation they collect rootstock of this plant along with roots of *Asparagus racemosus* (*Satamul*), *Mimosa pudica* (*Lajkuri*), bark of *Bombax ceiba* (*Simal*) and *Buchananialanzan* (*Pial*) admix equally, crushed to make beverage, given casual drink to patient 3 times by day for 3-7 days in glass measured to accumulate energy for curing defecation.

**5 *Rauvolfia serpentina* (L.) Benth. ex Kurz, Apocynaceae, Chhotochandar,** undershrub. For expulsion of foetus of parturient woman they have to collect roots of this plant along with roots of *Cissampelos pareira* var. *hirsuta* (*Chhotopar*) and seeds of *Vernonia anthelmintica* (*Banjira*), mingled up equally to make a paste, liquefy in glass of warm water, given to drink in draught to get relief.

**6 *Semecarpus anacardium* L.f., Anacardiaceae, Bhela,** Tree. In case of antifertility of woman, in between two menstrual period given them orally an admixture, made from the flowers of *Butea superba* (*Latpalas*) seeds of *Cassia fistula* (*Sonal*), roots of *Lygodium flexuosum* (*Mahadejata*) along with fruits of this plant, cup amount administered by day in empty stomach mix-up thoroughly in candy sugar, the fertility shall have to come very soon.

**7 *Butea monosperma* var. *lutea* Maheswari, Fabaceae. HaludPalas,** Tree. Juice exude from chopped bark of this plants is mixed in proportionable juice scooped out from bark of *Ceiba pentandra* (*Halud Simal*), make ½ cup of amount, drink in unboiled milk in a cup by day for 3 days by women, the deformed menstrual cycle may overcome.

**8. *Ceiba pentandra* (L) Gaertn., Bombacaceae, Halud Simal Tree.** In spermatorrhoea of man and leucorrhoea of woman, both the sex feed orally a drink prepared from crushed bark of this plant and plants of *Selaginella proniflora* (*Sanjiban*), cup amount of drink by day for 21 days is required for stopping involuntary discharge of semen in male and mucopurulent discharge of female.

**9 *Cochlospermum religiosum* (L) Alston, Bixaceae, Galga Tree.** When the case is jaundice, shows yellow colouration of skin and urine, they feed orally an admixture of root *Boerhavia diffusa* (*Khapra sag*), shoot of *Phyllanthus fraternus* (*Bhui-amala*) and bark of this plant either in cooked or in boiled condition, administered cup amount by day for 21 to 30 days as per condition.

### 4. Discussion

Maintaining the standard of sanctity these groves can be utilized for conservation of indigenous medicinal plants, preservation of local flora and fauna, provision for true breeding wild species and species of economic potential. Continuous awareness generation is the basic need for implementing such conservation and monitoring programme (Godble and Sarnaik, 2004). But, the lacunae hereabouts have facing challenges; lack of collocation in development planning; absence of localized network for natural resource management; negligence in protection of sacred groves; inattention to the conservation of tradition and culture of the tribe; stalemate position among forest department; research institution and the community so long; loss of faith in tradition; occultation and taboos upon eternity due to social reform; and, today, desolation of sacred groves by developmental interventions like dams and hydroelectric project foundation. However, such lacunae shall lacking its strength if, sacred groves are renovating, ethnic groups are regaining and tautology once more have returned. Biodiversity thereabout shall have to get new lease of life.

From the view point of sustainable development and conservation of biodiversity on which usually depends the very survival of traditional societies and their cultural base following appropriation have been proposed:

- Certain insects, birds and animals still have refulgence at these groves, help off with pollination of flowers, dispersal and germination of fruits and seeds, shall have to restore for Eco restoration.
- The tribe or other ethnic society who have mental connection with sacred groves will be the real experts and get precedence over other in supposition and experimentation of sacred groves conservation and biodiversity monitoring
- There is need to have a continuous awareness generation activity among younger generation of ethno-group for future strategic improvement of this traditional biodiversity and sustainable resources use of it.
- Developmental planning and collaborative approach should be taken so that is will be a seasonal source of income to the community without disturbing the sanctity , sanctuary and steerage of this reality.
- Valuable germplasm of important useful plants from the region should be preserved.
- An emphatical psychological dimension should be pro- cured beforehand to the community for their participation on a long-term basis in favour of this keepsake.
- Involvement of the department of Environment and Forest, other institution and organization is necessary into the process of sacred groves conservation and ways and means have cause to be searched to revive this traditional biodiversity.
- Developing action plan is needed for preserving and protecting many rare and endangered plant species. More focused, meaningful and result-oriented work on scared groves is needed now.

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