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### Research Paper

## Ethnobotanical Evaluation of some Medicinal Plants used by the Santali Tribes in Ganpur Forest Area of Birbhum District, West Bengal, India.

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### ARTICLE DETAILS

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Santali Tribes, Ganpur forest area of Birbhum district, medicinal plants.

### ABSTRACT

A survey of medical plants was carried out in the Ganpur forest area of Birbhum district along with their uses by the residing Santali tribal people for the treatment of various ailments in their daily life as well as for some serious diseases. These information collected, are also for the quick remedy of minor accidents like wounds, burns, stings of insects etc. The Santali tribal of the village mostly dependent on the herbal treatments for their primary health care, which is attributed partly to their socio-economic and cultural status.

### 1. Introduction:

The Indian region is very rich in ethnobotanical heritage (Jain, 1991) due to its rich cultural diversity. The variety and sheer number of plants having therapeutic properties is quite astonishing. The use of various parts of certain widely grown plants to cure specific diseases has also been in vogue in our indigenous system of medicine from ancient time (Das, Dutta and Sharma, 2009). But during the past two century, there has been a rapid extension of allopathic medicinal treatment in India and presently, it has become one of the most prevalent systems of medicine in the modern society of this 21st century. Nevertheless, still now, the use of natural products as medicine, especially plant products are widely used in the societies of rural tribal people like Santal, Munda, Bhumij, Lodha etc particularly in the remote areas with few health facilities (Mallick and Behera, 2009, Mallick Harasourav and S.K. mallick 2012, Saha et.al., 2012, Sanyal and Roy, 2017.). They acquired this knowledge by trial and error method, and became the store house of knowledge about the therapeutic properties of certain surrounding plants. This knowledge was accumulated and passed on one generation to the other by oral tradition without any written document. However, our knowledge of traditional health care system is not being inherited properly as a secret rite of the ancient societies (Bennet, 1983, Srivastava et al. 1987, Bharadwaj and Gakhar 2005, Khumbongmayum et al. 2005). But nowadays this knowledge is gradually disappearing in their younger generations due to various developmental and cultural activities by the state Govt. and NGOs, which are on way to change the private and cultural life of the tribals (Binu, 2009). Thus, the elders are more informative on this subject. There are many interesting and sometimes astonishing things to learn while asking them regarding the uses of medicinal plants in their daily life (Krishna, 1996). Although ethnomedicinal information with respect to some forest regions of India and also in West Bengal is available (Mohammad et al. 2010, Dutta Choudhury et al. 2010), no work has been reported so far on Ganpur forest area of Birbhum district of West Bengal. On this background, the objective of this paper is to document their valuable information about the plant.

### 2. Materials and Method

#### 2.1 Study area:

For the purpose of the present study, a remote forest area situated in the middle part of Birbhum district was selected. The present study area situated between 24°04'37.0"- 24°04'37.5" latitude and 087°41'004" longitude. This is a small village under the Ganpur Gram Panchayet and the dwellers are mainly santali tribals. In shape, it is roughly rectangular and is about 5 sq. km. in area. It is about 5 km. away from Mallarpur suburban under Mayureswar Block in Rampurhat subdivision. The climate is tropical with distinct three seasons: Summer (March-June), Rainy (July-October) and Winter

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(November-February). Temperature varies from 6°-7° C in December- January and reaches 42° - 44° C in April- May. Relative humidity ranges from 26%-84% around the year. Average rainfall is 760 mm out of which 80% falls during rainy season. The soil is chiefly sandy and is sometimes reddish in colour due to high content of iron.

## 2.2 Methods:

Survey work was carried out in different areas of the village as well as forest patches. The ethno botanical data presented here is the outcome of a series of intensive field studies conducted over a period of 3 months (March 2024 to May 2024) with duration of 10-12 days. Methodologies as suggested by Schultes (1960 and 1962), Jain (1989, 1995, 1997) and Ford (1978) have been followed using collection of information on ethno medicobotanical aspects. Information on ethno medicinal uses of different plants were collected through interviews with the local medicine men i.e. Ojha, Baidya, Kaviraj and several household for recording the data especially local name, parts used, preparation, dosage of medicine etc. The correct botanical name, with its family, local name, their medicinal properties, method of application, dosage are enlisted in the paper, and the plant specimens were collected at that time for the preparation of their herbarium, that will be deposited in the Herbarium of Botany Department, Charuchandra Collge, Kolkata.

## 3. Enumeration:

1. *Abroma augusta* (L.) L.f., Suppl. Pl. 341.1781, 'Ambroma'; Masters in Fl. Brit. India 1: 375.1874. *Theobroma augusta* L., Syst. Nat. ed.12: 233.1770.

**Vernacular Name:** Ulatkambal.

**Flowering:** June –September.

**Parts used:**

**Uses:** 1/2 spoonful of root extracts are taken in every morning in empty stomach for treat gynecological issues like dysmenorrhea (painful menstruation) and amenorrhea (absence of menstruation), as well as conditions like infertility. 1 teaspoonful of root extract with 4 to 5 black paper seeds is taken every morning to cure diabetes and its associated complications, including exhaustion, and is sometimes used for sleeping disorders, rheumatism, and fever.

2. *Andrographis paniculata* (N. L. Burman) Wallich ex Nees in Wallich, Pl. Asiat. Rar. 3: 116. 1832.

**Vernacular Name:** Kalmegh.

**Flowering:** November - December.

**Parts used:** Leaves, stem

**Uses:** 2 spoonful of leaf extracts are taken in every morning in empty stomach for healthy liver, 1 teaspoonful of leaf extract with 1 spoonful of honey is taken in every morning to cure ascariasis and also to cure constipation of children. About 25 g leaves are boiled in 4 cups of water and make it about 1 cup. This decoction is taken in every morning and evening for 15 days to cure malaria. 5 gm. of leaves with 5 gm. of *Nyctanthes arborescens* and 5 gm. of *Melia azadirachta* and a pinch of salt are crushed and extracted and 1 spoonful of this extract is taken in every morning and evening to cure typhoid.

3. *Bacopa monnieri* (L.) Pennel.

**Vernacular Name:** Brahmi.

**Flowering:** June-October.

**Parts used:** Leaves and whole plant.

**Uses:** Brahmi tea that is made by brewing brahmi leaves helps to manage cold, chest congestion and bronchitis. Decoction of leaves are used for memory enhancer.

4. *Boerhavia diffusa* var. *mutabilis* R. Brown; *B. repens* var. *diffusa* (Linnaeus) Heimerl ex J. D. Hooker.

**Vernacular Name:** Punarnava.

**Flowering:** June-September.

**Parts used:** Whole plant.

**Uses:** A cup of leaf extract is mixed with 2 spoonful of honey and is taken for 15 days to control menstrual problem and in jaundice

5. *Catharanthus roseus* (Linnaeus) G.Don, Gen. Hist. 4: 95. 1837.

**Vernacular Name:** Nayantara.

**Flowering:** February-October.

**Parts used:** Roots and leaves

**Uses:** Roots and leaves in the form of a decoction or extract are active on hypertension. 2 spoonful of leaf extract with 2 spoonful of root extract of *Withania somnifera* are mixed and the mixture is taken for 15 days to control menstrual disorders.

6. *Centella asiatica* (Linn.) Urban.

**Vernacular Name:** Thankuni.

**Flowering:** April-October.

**Parts used:** Leaves and petioles.

**Uses:** Leaf paste is widely used in skincare for its ability to soothe irritated skin, reduce inflammation, and manage moisture, making it beneficial for acne and sensitive skin. It is also used for memory enhancement, reducing anxiety, and even potential neuroprotective effects.

**7. *Holarrhena antidysenterica* (G. Don) Wall. ex A. DC.; (=) *Holarrhena febrifuga* Klotzsch).**

**Vernacular Name:** Kurchi.

**Flowering:** April-July.

**Parts used:** Bark and seeds.

**Uses:** decoction of the bark is used to treat piles (hemorrhoids). It also used for anti-dysenteries. Seeds are deep in water for overnight and this water is used as an antidote and for topical pain relief.

**8. *Phyllanthus amarus* Schumacher & Thonning, Kongl. Danske Vidensk. Selsk. Skr. 4: 195. 1829.**

**Vernacular Name:** Bhui amla.

**Flowering:** Throughout the year.

**Parts used:** Whole plant.

**Uses:** Decoction of whole plant used to treat various ailments, including gallstones, kidney stones and liver problems. It also used for diabetes, intestinal infections.

**9. *Terminalia arjuna* (Roxb. ex DC.) Wight & Arm, Prodr. 314. 1834. Clarke in Hook.f., l.c.447; Dalz. & Gibson, Bomb. Fl.91.1861; Cooke l.c.509.; Parker l.c., 240., R.R.Stewart, l.c.**

**Vernacular Name:** Arjun.

**Flowering:** April-May.

**Parts used:** Bark, leaf.

**Uses:** Decoction of bark is used to strengthen cardiac muscles, normalize heartbeats and improve overall cardiovascular function. Leaf extract is used for anti-inflammation and also for fungal infection.

**10. *Tinospora cordifolia* auct. non (DC). Miers: Hook f. & Thoms. in Hook. f., l.c. 97. Parker, l.c. 9; R.R. Stewart, Ann. Cat. Vasc. Pl. W. Pak. & Kash. 283. 1972.**

**Vernacular Name:** Gulancha.

**Flowering:** March-June.

**Parts used:** Leaf, petiole and stem

**Uses:**

Stem and petiole in the form of a decoction are used in diabetes, hypertension, arthritis, liver diseases, malaria, pain, urinary tract infection. 2 spoonful of leaf extract with honey is used for chronic fever.

**4.Key to the Investigated Taxa:**

1.a. Climber, dioecious, flowers in raceme, sepals in 2 whorl, petals in 2 whorls.....*Tinospora cordifolia*.

1.b. Herb, shrub or tree, flowers in cyme, spike, panicle or umbel, sepal in single whorl, petals in single whorl.

2.a. Prostrate, stem cylindrical, glabrous, with or without numerous minute glands.

3.a. Stem woody, ovary inferior, perianth present.....*Boerhavia diffusa*.

3.b. Stem nonwoody, succulent, weak, ovary superior, sepal and petal present.

4.a. Leaves arise at group at node, petiolate, multicostate, margin dentate, flowers in umbel, actinomorphic .....*Centella asiatica*.

4.b. Leaves arise at opposite decussate manner, sessile, unicostate, margin entire, flowers in solitary axillary cyme.....*Bacopa monnieri*.

2.b. Erect, stem cylindrical or quadrangular, glabrous or pubescent, with or without distinct broader 2 glands

5.a. Leaves with two green gland at base, fruit drupe, woody .....*Terminalia arjuna*.

5.b. Leaves without glands, fruit capsule or follicle, nonwoody.

6.a. Fruit capsule, axile placentation

7.a. Stem cylindrical, two types of leaves, alternate, flower actinomorphic

8.a. Two type of stem, long shoots of unlimited growth without leaves & short shoots of limited growth bearing leaves, leaves of scale like and foliage, flower unisexual.....*Phyllanthus amarus*.

8.b. Single type of stem, long shoots with unlimited growth with ovate and 9 angled leaf, flower bisexual .....*Abroma augusta*.

7.b. Stem quadrangular, single type of ovate leaf, opposite decussate, flower zygomorphic .....*Andrographis paniculata*.

6.b. Fruit follicle, parietal placentation

9.a. Shrub, without sweet smell, anther at throat of corolla tube, stigma anulate, viscid, with reflexed membrane, penicillate.....*Catharanthus roseus*.

9.b. Tree, with sweet smell, anther at base of corolla tube, stigma oblong to fusiform, tip 2 toothed.....*Holarrhena antidysenterica*.

## 5. Discussion

From the detailed morphotaxonomical study of 10 medicinal plants of the 9 families viz. Sterculiaceae, Acanthaceae, Scrophulariaceae, Nyctaginaceae, Apocynaceae, Apiaceae, Euphorbiaceae, Menispermaceae and Combretaceae represented by various characteristics. The vegetative as well as reproductive features vary greatly. Among the ten taxa, three (*Abroma augusta*, *Terminalia arjuna* and *Holarrhena antidysenterica*) are trees, three (*Bacopamonneri*, *Boerhavia diffusa* and *Centella asiatica*) are prostrate herb, three (*Andrographis paniculata*, *Catharanthus roseus* and *Phyllanthus amarus*) are erect herb and one (*Tinospora cordifolia*) is climber.

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