



Plants used as medicine by Juang tribes of Keonjhar district, Odisha, India

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Abstract: Studies on Juang tribe's dependence on forest for their livelihood security are few for Odisha. Ethnomedicinal observations in the district with a potential diversity of medicinal plants have been studied. The study yielded 20 plant species belonging to 18 families those were frequently used in the treatment of various diseases and ailments by the tribal people of Juang of Keonjhar district. The forest dwellers usually collect these rare plants from the nearby forest areas which are easily accessible and medicines are prepared under the guidance of Vaidyas. This communication throws a preliminary idea about the application of traditional medicines against various serious diseases and the plants screened by the Juang tribes to be used as medicine.

Key words: Ethnomedicine; Juang tribe; Keonjhar

INTRODUCTION

Odisha being the costal state of Indian sub-continent lies between 17° 48'-22° 94'N latitude and 81°24' - 87°29' E longitude. This is one of the thickly populated states of India encompassing 30 districts where different group of people belonging to different tribe lives in harmony with nature. Odisha is the second largest tribal populated states in India. As many as 63 tribal communities inhabit in the state of Odisha and this diversity provides ample scope for ethnobiological studies. Botanical Survey of India has already carried out pioneering studies on the tribals of Odisha (1970-71). Saxena *et al.*, studied the ethnobotany of Odisha while Das and Misra (1988) and Nayak *et al.*, (2004) studied the medicinal plants of Koraput district and Kalahandi district respectively. Girach *et al.*, (2001) worked on the medicinal plants of Bhadrak district which are used in Unani system of medicine. Behera and Misra (2005) worked on the plants used by the Kondha tribes of Odisha in their health care. Odisha has a rich diversity of medicinal plants (Saxena & Dutta, 1975). But the areas of medicinal plants as well as ethnobotany including ethnomedicine are not so well documented and studied. Researches on medicinal plant diversity in Odisha especially ethnomedicine were not paid much attention during the course of time. Therefore it have great potentials to contribute to the sustainable livelihood of the Juang people living in the Keonjhar district by ensuring access to affordable traditional medicines for common ailments. As part of a comprehensive study this paper deals with the traditional uses of medicinal plants by the Juang tribes of Keonjhar district of Odisha.

Study area

The studies were conducted in Gonasika panchayat region in Banspal Block of Keonjhar district as this is mainly dominated by Juang people. The district of Keonjhar lying between 21°1' to 22°1'N latitude and 85°11' to 86°22' E longitude represents a panorama of millennia, both from the geographical and anthropological point of view. Spreading over an area of 8,240 sq km, it has waterfalls, roaring gorges, mountains and minerals. About half of the area is covered by forests i.e about 4043 sq km. Out of which 1838.02 sq km area comes under Reserve

Forests. The forests are of northern tropical moist deciduous type.

The district is situated at an elevation of 1200 m above the MSL due to which the district have a cool climate. But extensive deforestation and lack of vegetation cover due to large scale of mining activities the climatic conditions are changing drastically and the coolness is displaced by hot summers with high humidity, but the winter is remarkably cooler. Three months from March to May make the hot summer months. The maximum temperature goes up to 41°C. Monsoon starts in June and lasts till September bringing very erratic rainfall.

Topographically the district can be broadly divided into three divisions namely i. plain regions of Baitarani river belt, ii. Hilly region of Bhuinypirh and Juangpirh and iii. mountain regions of western and northern part. The blocks such as Patna, Ghatgaon, Kendujhar, Saaharapada, Harichandanpur, Telkoi and Banspal are included in Kendujhar integrated Tribal Development Agency (ITDA). Similarity Joda, Champua and Jhumpura blocks are included in Kendujhar ITDA. In addition to these two ITDAs, a micro project called Juang Development Agency (JDA) has been working in the Juangpirh with its headquarters at Gonasika. Agriculturally the district is undeveloped as it is mostly rain fed and drought prevails most of the year. Paddy is the major crop grown in the district.

MATERIALS AND METHODS

Ethnomedicinal studies were conducted in Gonasika Panchayat region in Banspal Block of Keonjhar district. More than 60% of the population depends on indigenous herbal drugs for their primary health care. The villages were screened and selected on the basis of dominance of tribal communities. From each village the village headman and elderly persons were interviewed to study their dependencies on plants for treatment of diseases. The native health practitioners are known as "Vaidas" were also interviewed concurrently. Frequent visits to those villages were made for spot verification and collection of plant samples. Information pertaining to ethnomedicine and

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their mode of administration/applications were also gathered through interview.

The voucher specimens collected during the period of study were identified and deposited in the Herbarium of the Post Graduate Department of Botany, Utkal University, Bhubaneswar. The specimens were identified with the help of local floras (Saxena and Brahmam, 1994-1996; Mooney, 1950 and Haines 1921-25). A detailed account of 20 angiospermic species belonging to 18 families which are frequently used by the Juang people in their routine life to get relief from different ailments are provided in this communication. The species are provided with correct and up to date nomenclature along with vernacular names if any, locality of collection, field numbers and most importantly their uses and mode of administration. The family names of the species are given in the parentheses after the nomenclature.

OBSERVATIONS

1. *Abrus precatorius* L. Syst. Nat. (ed.12).2:472.1767; Haines, Bot. Bihar and Orissa 2:259.1961; Ohashi in Hara & Williams, Enum. Fl.Pl. Nepal 2:103.1979; Saxena & Brahmam, Fl. Orissa 1:445.1994. (Fabaceae)

Vernacular Name: Kaincha (O), Crab's eye (E)

Locality: Champaganagar; F.N. 25

Uses: About 20 mg. of dry leaf powder is taken with cold water once daily for about 15 days to cure leucorrhoea. Freshly prepared and gently warmed leaf paste along with mustard oil is applied on the affected part to get relief from rheumatic pain. About 10 mg. of juice extract from seeds is taken orally twice daily for 2-3 days for abortion in early stage of conception.

2. *Achyranthes aspera* L. Sp.Pl. (ed.1).204.1753; Haines, Bot. Bihar and Orissa 2:805.1961; Townsend in Dassan. & Fosberg, Rev. Handb. Fl. Ceylon 1:38.1980; Saxena & Brahmam, Fl. Orissa 3:1498.1995. (Amaranthaceae)

Vernacular Name: Apamaranga (O), Prickly Chaff Flower (E)

Locality: Nuasahi; F.N. 70

Uses: Stem juice is applied on the root of the teeth to stop bleeding from the gum. About 20 mg. of leaf juice is administered orally to the pregnant woman for easy delivery. The leaves and inflorescence are boiled and the decoction is taken twice daily to cure fever. Root or leaf paste is applied to cure boils in their early stage.

3. *Acorus calamus* L. Sp. Pl. 234.1753; Hook.f. Fl. Brit. India 6.555.1893; Cooke, Fl. Pres. Bombay 3.341.1958. (Araceae)

Vernacular Names: Bacha (O); Sweet Flag (E).

Locality: Bandhasahi; F.N. 55.

Uses: About a half teaspoonful of powder prepared from dried rhizome is taken twice daily to cure asthma. Half teaspoonful of rhizome powder is taken in empty stomach once in morning to increase appetite. Freshly crushed rhizome is chewed for the treatment of dysentery.

4. *Aegle marmelos* (L.) Corr. Serr. Trans. L. Soc. London 5: 223. 1800; Haines, Bot. Bihar and Orissa 1: 173. 1961; Stone in Dassan. & Fosberg, Rev. Handb. Fl. Ceylon 5: 414.

1985; Saxena & Brahmam, Fl. Orissa 1: 228. 1994. *Craterva marmelos* L. Sp. Pl. 444. 1753. (Rutaceae)

Vernacular Names: Bela (O), Bael tree (E)

Locality: Champaganagar; F.N. 32

Uses: Two or three fresh leaves are chewed daily in empty stomach to cure severe gastritis and to reduce blood sugar level. About one teaspoonful of dried leaf powder prepared from the leaves of Bels (*Aegle marmelos*) and Neem (*Azadirachta indica*) in equal proportion to reduce blood sugar level. Leaf paste is applied in the affected part to cure injuries due to burn.

5. *Bauhinia vahlii* Wt. & Arn. Prodr. Fl. Ind. Or. 297. 1834; Haines, Bot. Bihar & Orissa 2: 324. 1961; Ohashi in Hara & Williams, Enum. Fl. Pl. Nepal 2: 108. 1979. (Caesalpiniaceae)

Vernacular Name: Siali (O), Camel's foot climber (E)

Locality: Bandhasahi; F.N. 88.

Uses: Seed decoction (10 ml.) is taken twice daily in empty stomach for the treatment of diabetes. About 20 mg. of dried seed powder is taken orally along with water to cure diarrhea. Leaf paste is applied to cure pimples on the face.

6. *Bombax ceiba* L. Sp. Pl. 511. 1753; Manilal, Fl. Silent Valley 30. 1988. *Bombax malabaricum* DC. Prodr. 1: 479. 1824; Haines, Bot. Bihar & Orissa 1: 77. 1961. (Bombacaceae)

Vernacular Names: Simili (O), Red Silk Cotton Tree (E)

Locality: Nuasahi; F.N. 80.

Uses: Fresh roots are grinded with water and applied on the affected parts to get relief from pain due to boils. Paste prepared from fresh root along with sugar candy is taken by females to restore fertility.

7. *Dendrocalamus strictus* (Roxb.) Nees, Linnaea 9: 476. 1835; Haines, Bot. Bihar & Orissa 3: 992. 1961; Matthew, Fl. Tam. Carnatic 3 (3): 1832. 1983. *Bambusa stricta* Roxb. Pl. Cor.t. 80. 1798. (Poaceae)

Vernacular Names: Salia Baunsa (O); Solid Bamboo (E)

Locality: Hurlabahali; F.N. 42.

Uses: Wounds and cuts are treated with powder prepared from leaves and outer layer of stem.

8. *Erythrina variegata* L. var. *orientalis* (L.) Merr. Interp. Herb. Amb. 276. 1917; Saldanha & Singh in Saldanha, Fl. Karnataka 1: 460. 1984. *Erythrina orientalis* L. Sp. Pl. 706. 1753. *Erythrina indica* Lamk. Encycl. 2: 391. 1786; Haines, Bot. Bihar & Orissa 2: 297. 1961. (Fabaceae)

Vernacular Names: Paladhua (O); Indian coral tree (E)

Locality: Nuasahi; F.N. 74.

Uses: Inhaling of well crushed leaves by nostrils relieves headache.

9. *Ficus benghalensis* L. Sp. Pl. 1059. 1753; Haines, Bot. Bihar & Orissa 3: 874. 1961 ('bengalensis'); Corner in Dassan. & Fosberg, Rev. Handb. Fl. Ceylon 3: 251. 1981; Saxena & Brahmam, Fl. Orissa 3: 1708. 1995. (Moraceae)

Vernacular Names: Bara (O); Banyan tree (E)

Locality: Nuasahi; F.N. 72.

Uses: About 20 ml. of juicy paste prepared from tender tips of prop root is taken in empty stomach once daily for 21

days for treatment of nocturnal emission and restores vigour and strength in nerves if taken along with goat milk.

10. *Gymnema sylvestre* (Retz.) R. Br. ex Schutt. Syst. Veg. 6. 57. 1820; Haines, Bot. Bihar & Orissa 2: 583. 1961; Huber in Dassany. & Fosberg, Rev. Handb. Fl. Ceylon 4: 100. 1983. *Periploca sylvestris* Retz. Obs. 2: 15. 1781. (Asclepiadaceae)

Vernacular Names: Gudamari (O); Gudmani (E)

Locality: Champaganar; F.N. 28.

Uses: Seven fresh leaves are chewed daily in the morning in empty stomach for seven days to reduce blood sugar level.

11. *Hemidesmus indicus* (L.) R. Br in Aiton, Hort. Kew. (ed.2). 2: 75. 1811; Haines, Bot. Bihar & Orissa 2: 575. 1961; Huber in Dassan. & Fosberg, Rev. Handb. Fl. Ceylon 4: 185. 1983; Saxena & Brahmam, Fl. Orissa 2: 1079. 1995. *Periploca indica* L. Sp. Pl. 211. 1753. (Periplocaceae)

Vernacular Names: Anantamula (O); Indian Sarsaparilla (E).

Locality: Bandhasahi; F.N. 98.

Uses: About 10 mg. of root paste is taken with coconut water in empty stomach for seven days to cure jaundice. Leaf juice (10 ml.) is taken thrice a day to cure fever. About 5 mg. of root powder is taken with lukewarm water thrice daily for about 21 days to cure rheumatic pain.

12. *Justicia adhatoda* L.Sp.Pl.15.1753; Stream in J.Arnold Arb.52;640.1971; Saxena and Brahmam, Fl. Orissa 3:1359(2008), 1995. *Adhatoda vasica* Nees. in Wall. Pl.As.Rar.3:103.1832; C.B.Cl. in Hook.f. Fl. Brit. India 4:540.1885; Haines, Bot. Bihar & Orissa 2: 694(728). 1922. (Acanthaceae).

Vernacular Names: Basanga (O); Justicia (E).

Locality: Daitari hill top; F.N. 102.

Uses: Leaf decoction (about 20 ml.) taken with honey twice daily in empty stomach for 7-10 days to cure acute cough and cold. Powder made from leaf is taken with warm water once daily for 20 days to get relief from rheumatic pain.

13. *Madhuca indica* J. Gmelin. Syst. Nat. 2(1): 799. 1791; Matthew, Fl. Tam. Carnatic 3(2): 857. 1983. *Bassia latifolia* Roxb. Pl. Cor.t.19. 1795; Haines, Bot. Bihar & Orissa 2: 536. 1961. (Sapotaceae)

Vernacular Names: Mahula (O); Butter tree (E).

Locality: Vatisahi; F.N. 50.

Uses: Powder obtained from dried leaves is applied to cure burn injuries. Flower decoction (20 ml.) is taken twice daily for about 2 weeks for treatment of asthma.

14. *Ocimum sanctum* L. Mant. Pl. 85. 1767; Haines, Bot. Bihar & Orissa 2: 764. 1961; Cramer in Dassan. & Fosberg, Rev. Handb. Fl. Ceylon 3: 116. 1981; Saxena & Brahmam, Fl. Orissa 3: 1470. 1995. (Lamiaceae)

Vernacular Names: Tulsi (O); Sacred basil (E).

Locality: Nauasahi; F.N. 78.

Uses: Leaf juice with honey is taken in empty stomach for treatment of cold and cough. 3 to 4 fresh leaves are chewed along with honey daily in the morning in empty stomach to prevent malaria. About 10 ml. of leaf juice is taken in empty stomach for 15 days to check excess urination.

15. *Pongamia pinnata* (L.) Pierre, Fl. Forest. Cochinch.t.385.1899; Matthew, Fl. Tam. Carnatic 1: 441. 1983; Saxena & Brahmam, Fl. Orissa 1: 570. 1994. *Cytisus pinnatus* L. Sp. Pl. 741. 1753. *Pongamia glabra* Vent. Jard. Malm. t.28.1803; Haines, Bot. Bihar & Orissa 2: 313. 1961. (Fabaceae)

Vernacular Names: Karanja (O); Indian Beech (E).

Locality: Nuasahi; F.N. 79.

Uses: Tender twig is used as tooth brush to cure pyorrhea. Oil extracted from seed is massaged on the body to cure skin disease.

16. *Rauvolfia serpentina* (L.) Benth ex Kurz, For. Fl. Burma 2: 171. 1877; Haines, Bot. Bihar & Orissa 2: 565. 1961; Matthew, Fl. Tam. Carnatic 3(2): 917. 1983. *Ophioxylon serpentinum* L. Sp. Pl. 1043. 1753. (Apocyanaceae)

Vernacular Names: Patalagaruda (O); Rauvolfia (E).

Locality: Bandhasahi; F.N. 53.

Uses: About 10 ml. of root paste is taken orally for treatment of snake bite. Bark obtained from root is grinded with water and about 10 mg. of this paste is taken with cold water to cure stomach ache. About 5 mg. root paste is taken daily in empty stomach for a week for the treatment of high blood pressure.

17. *Saraca asoca* (Roxb.) de Wilde, Blumea 15:393.1968; Zuijderhoudt, Blumea 15.422.1968; Saxena and Brahmam, Fl. Orissa 1:401(633). 1994. *Jonesia asoca* Roxb. Asiat. Res. 4:365.1795. *Saraca indica auct. non. L.*; Haines, Bot. Bihar & Orissa 2: 312(326). 1922. (Caesalpiniaceae)

Vernacular Names: Ashoka (O); Ashoka tree (E).

Locality: Champanagar; F.N. 20.

Uses: Powder prepared from dried petals of the flower is taken with cold water twice daily in empty stomach to cure dysentery. About 20 ml. of bark decoction is taken in empty stomach twice daily for about a month to cure irregular menstruation and excessive bleeding.

18. *Smilax zeylanica* L. Sp. Pl. 1029. 1753; Haines, Bot. Bihar & Orissa 3: 1136. 1961; Hara *et al.*, Enum. Fl. Pl. Nepal 1: 79. 1978. (Smilacaceae)

Vernacular Names: Muturi (O); Muter (E).

Locality: Nuasahi; F.N. 75.

Uses: About 20 ml. of root decoction is taken for 15 days to cure rheumatic pain. Root paste is taken for a week to cure venereal diseases. Powder of dried root is applied on chronic ulcers.

19. *Streblus asper* Lour. Fl. Cochinch. 615. 1790; Haines, Bot. Bihar & Orissa 3: 860. 1961; Corner in Dassan. & Fosberg, Rev. Handb. Fl. Ceylon 3: 281. 1981; Saxena & Brahmam, Fl. Orissa 3: 1729. 1995. (Moraceae)

Vernacular Names: Sahada (O).

Locality: Nuasahi; F.N. 76.

Uses: Regular brushing of teeth by fresh tender twigs cure toothache. Root paste is used against dog-bite. Leaf paste with castor oil (*Ricinus communis*) is applied to cure eczema.

20. *Syzygium cumini* (L.) Skeels, U.S.D.A. Bur. Pl. Industr. Bull. 248: 2. 1912; Manilal, Fl. Silent Valley 104. 1988. *Myrtus cumini* L. Sp. Pl. 471. 1753. *Eugenia jambolana*

Lam. Encycl. 3: 198. 1789; Haines, Bot. Bihar & Orissa 2: 376. 1961. (Myrtaceae)

Vernacular Names: Jammukoli (O); Java plum (E).

Locality: Champanagar; F.N. 15.

Uses: About 20 ml. of fruit juice is taken once daily in empty stomach to cure dysentery. About 10 mg. of dry powder is taken in empty stomach for 7-10 days for the treatment of piles.

DISCUSSION

The study reveals the uses of 20 angiospermic species under 18 families for the treatment of different diseases. The herbal medicines are mostly administered in the form of juice, decoction, paste or powder prepared in a crude method from different plant parts such as root, bark, leaves, flowers, fruits, seeds and whole plant etc. Tradition and beliefs are the only basis of use of the herbal medicines. The knowledge of this traditional healthcare system is from generation to generation in oral form. Rapid march of urbanization and excessive mining activities leading to pollution as well as forest depletion affects adversely the life styles of the aboriginals in general and Juang in particular. As the outcome of such activities the potential medicinal plants found in the remote forests started disappearing at an alarming rate. So, this is the high time to conserve our forest wealth ultimately the plants having high potentials in medicinal point of view will be conserved for the posterity.

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