

Some Phytotherapeutic Claims by Tribals of Rayagada District, Orissa, India

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Abstract

The present paper reports with 30 plant species belonging to 23 families, mostly used by the tribal people of Rayagada district, Orissa. The tribal population of the region primarily depends upon these plants for curing various diseases. They are enumerated with binomial, family, habit, local name, parts used and ethnomedicinal uses. Further studies on chemical and pharmacological actions are suggested to validate the claims.

Key Words: Phytotherapeutic claim, Ethnomedicine, Tribes, Herbal healer, Orissa.

Introduction

Use of plant based drugs and chemicals for curing various ailments and personal adornment is as old as human civilization. In India, the sacred Vedas dating back between 3500 B.C and 800 B.C give many references of medicinal plants. One of the remotest works in traditional herbal medicine is “*Virikshayurveda*”, compiled even before the beginning of Christian era and formed the basis of medicinal studies in ancient India. “*Rig Veda*”, one of the oldest Indian literatures written around 2000 B.C. mentions the use of Cinnamon (*Cinnamomum verum* Prel.), Ginger (*Zingiber officinale* Rose.), Sandalwood (*Santalum album* L.) etc. not only in religious ceremonies but also in medical preparation (Bentley and Trimen, 1980).

Plants and plant-based medicaments are the basis of many of the modern pharmaceuticals we used today for our various ailments (Abraham, 1981; Atal & Kapur, 1982). At one time, nearly all medicines were derived from biological resources. Even today they remain vital and as much as 67%-70% of modern medicines are derived from natural products (State of the Environment Report, 2001). Nearly 80% of the world populations rely on traditional medicines for primary health care, most of which involve the use of plant extracts (Sandhya et al., 2006). In India, almost 95% of the prescriptions are plant-based in the traditional systems of Unani, Ayurveda, Homoeopathy and Siddha (Satyavati et al., 1987).

Ancient ethnic communities around the world had learnt to utilize their neighbourhood herbal wealth for curative as well as offensive purposes (Subramoniam and Pushpangadan, 1995). Due to lack of literacy, their knowledge on plants developed often at the cost of their dear life through centuries old experience could not be perfectly documented and it had rather descended from one generation to another as a domestic cultural heritage. As the ethnic groups migrated from place to place in search of their livelihood, their folklore knowledge also became fragmented and travelled with them often with ‘additions and deletions’. Their findings in course of time have become basic leads for chemical, pharmacological, clinical and biochemical investigations, which ultimately gave birth to drug discovery. The present paper is an attempt to

collect all the information available on ethno-medicinal uses of plants commonly used by different tribes for combating various ailments.

Study area

Rayagada district is situated in southern part of Orissa. Earlier it was a part of Koraput district. It is located between 18° 56' N to 19° 58' N latitude and 82° 53' E to 84° 02' E longitude, the elevation of the area ranges from 700 m to 1300 m. It occupies an area of 7,584.7 sq km. The district has a population of 8,32,019, out of which 4,73,379 are tribals. In other words, the district is predominantly a tribal populated district with 57.52% of tribal population. The physiography of the district gives a perfect platform for the tribals in sustaining their ethno-cultural identity. Tribal people are mostly inhabited the forest area, depend on the forest resources for their livelihood (food, fodder and medicine). Forest area covers an extent of 4785.36 sq. km out of which 777.27 sq. km is reserved forest. The district has been the homeland of various tribal communities with their sub-tribes, who are found in different level of development depending upon their assimilation with the so called mainstream or modern communities. The *Kondhas* and *Souras* are the predominant tribes found in the interior forest, where as other sub-tribes like *Kotia kondha*, *Relli*, *Ghassi*, *Jhodia*, *Jatapu* and *Konda Dora* are found in the fringe areas of the forest. The soil type is loamy but in higher elevation the soil is rocky with small to big boulders. The temperature ranges from 15° C during winter and about 35° C- 40° C in summer. The mean annual rainfall is 1516 mm. The bulk of the rain is in the month of August to October, while March to May is the driest months.

Materials and Methodology

A literature survey was carried out on the study area before the field work started (Das and Misra, 1987; Das and Misra, 1988a; Das and Misra, 1988b, Hemadri and Rao, 1989; Hemadri, 1991; Dash, 1994; Das and Misra, 2000). Most of the works were based on taxonomic survey. Very few works were done on ethnobotanical study. The present work is the outcome of extensive survey of different tribal villages of Rayagada district undertaken during 2004-2005 to collect information on the medicinal uses of different plant species. During field work, interviews were conducted with local knowledgeable villagers, the herbal healer called 'Vaidyas' (local physicians in Indian System of Medicine), old woman and medicinal plant vendors. Plant specimens were collected and identified with local flora (Saxena and Brahmam, 1996). The medicinal value of each plant was enumerated in the following pattern: a) Binomial, b) Family, c) Habit, d) Local name, e) Parts used and f) Ethnomedicinal uses.

Results and Discussion

The data on medicinal plants, which was collected from local inhabitants in Rayagada district, were analysed. The enumeration and utilization of these plants are described below.

1. Binomial : *Aegle marmelos* (L.) Corr.
Family : Rutaceae
Habit : Tree
Local name : Bela
Parts Used : Stem Bark
Ethnomedicinal Uses : For Stomach & Dysentery: The bark is pounded and made into paste with mustard seeds and used for diarrhoea, dysentery and other stomach disorders.
2. Binomial : *Alangium salvifolium* (L.f.) Wang
Family : Alangiaceae

- Habit : Tree
 Local name : Ankul koli
 Parts Used : Leaves
 Ethnomedicinal Uses : For Chronic wounds: The leaves and tender shoots are made into paste with salt and applied to boils.
3. Binomial : *Andrographis paniculata* (Burm.f.) Wall. ex Nees
 Family : Acanthaceae
 Habit : Herb
 Local name : Bhuin nimba
 Parts Used : Leaves
 Ethnomedicinal Uses : For Headache: Leaf paste is applied on the forehead for 2-3 hours to relieve continuous headache.
4. Binomial : *Asparagus racemosus* Willd.
 Family : Asparagaceae
 Habit : Herb
 Local name : Iswar jata
 Parts Used : Tuber
 Ethnomedicinal Uses : For Stomachache: Tuber is made into paste and taken daily twice for three days.
5. Binomial : *Barleria cristata* L.
 Family : Acanthaceae
 Habit : Herb
 Local name : Daskaranda
 Parts Used : Root
 Ethnomedicinal Uses : For Anaemia: A decoction of the root with *Barleria strigosa* and dry fish is given in anaemia.
6. Binomial : *Boerhavia diffusa* L.
 Family : Nyctaginaceae
 Habit : Herb
 Local name : Atikapudi saga
 Parts Used : Root
 Ethnomedicinal Uses : For Asthma: Root powder mixed with black pepper powder daily once for a fortnight.
7. Binomial : *Butea monosperma* (Lamk.) Taub.
 Family : Papilionaceae
 Habit : Tree
 Local name : Palasa
 Parts Used : Seed
 Ethnomedicinal Uses : For preventing Pregnancy: Seed after removing the seed coats are made into powder and mixed with country liquor and given for three days after menstruation as medicine to prevent pregnancy.
8. Binomial : *Calotropis gigantea* R.Br.
 Family : Asclepiadaceae
 Habit : Shrub
 Local name : Arakha
 Parts Used : Root
 Ethnomedicinal Uses : For Diarrhoea: Dried root powder is taken orally with cold water to cure diarrhea.
9. Binomial : *Cassia fistula* L.
 Family : Caesalpiniaceae
 Habit : Tree
 Local name : Sunari
 Parts Used : Fruit
 Ethnomedicinal Uses : For Constipation: The fruits are crushed and the paste is taken orally in very small quantity in case of constipation.

10. Binomial : *Euphorbia hirta* L.
 Family : Euphorbiaceae
 Habit : Herb
 Local name : Jhuntikhuntia
 Parts Used : Whole plant
 Ethnomedicinal Uses : For Cuts: The crushed plant is fried and applied to cuts.
11. Binomial : *Flacourtia indica* (Burm.f) Merr.
 Family : Flacourtiaceae
 Habit : Shrub
 Local name : Kontai koli
 Parts Used : Stem Bark
 Ethnomedicinal Uses : For Dysentery: The stem bark paste with about two gms mustard seed is heated in earthen pot and given with curd twice daily for dysentery.
12. Binomial : *Gymnema sylvestre* (Retz.) R.Br.
 Family : Asclepiadaceae
 Habit : Climber
 Local name : Gudmari
 Parts Used : Leaves
 Ethnobotanical Uses : For Diabetes: Dried leaves are pounded together with Coriander fruit (*Coriandrum sativum* L.), juice is extracted and given orally.
13. Binomial : *Hybanthus enneaspermus* (L.f.) F.v. Muell.
 Family : Violaceae
 Habit : Herb
 Local name : Madan mastaka
 Parts Used : Whole plant
 Ethnomedicinal Uses : For Siphillis and Dysentery: The paste of two to three entire plants with seven black pepper is given once daily for siphillis and dysentery.
14. Binomial : *Mallotus philippensis* (Lam.) Muell.
 Family : Euphorbiaceae
 Habit : Tree
 Local name : Sundari
 Parts Used : Seed
 Ethnobotanical Uses : For Constipation: Decoction of seed is taken daily twice before food.
15. Binomial : *Mimosa pudica* L.
 Family : Mimosaceae
 Habit : Herb
 Local name : Lajakuli lata
 Parts Used : Root
 Ethnomedicinal Uses : For Snake-bite: The root is made into paste in the water collected after washing raw rice and given orally for snake-bites.
16. Binomial : *Plumbago indica* L.
 Family : Plumbaginaceae
 Habit : Herb
 Local name : Raktachita
 Parts Used : Root
 Ethnomedicinal Uses : For Abortion of Pregnancy: The root is made into paste along with the root of *Michelia champaca* and given once daily in the morning for three days to induce abortion.

17. Binomial : *Pterocarpus marsupium* Roxb.
 Family : Papilionaceae
 Habit : Tree
 Local name : Piasal
 Parts Used : Wood
 Ethnobotanical Uses : For Diabetes: The wood is kept in water overnight. In the morning the water is taken for cooling effect. This is also recommended to cure diabetes.
18. Binomial : *Rauvolfia serpentina* (L.) Benth. ex Kurz
 Family : Apocynaceae
 Habit : Shrub
 Local name : Patala garuda
 Parts Used : Root
 Ethnomedicinal Uses : For Snake-bite: Paste from root is taken orally in snake-bite.
19. Binomial : *Schleichera oleosa* (Lour.) Oken.
 Family : Sapindaceae
 Habit : Tree
 Local name : Kusum
 Parts Used : Seed
 Ethnomedicinal Uses : For Eczema: The oil obtained from seed is applied in eczema area.
20. Binomial : *Shorea robusta* Gaertn.f.
 Family : Dipterocarpaceae
 Habit : Tree
 Local name : Sala
 Parts Used : Stem Bark
 Ethnomedicinal Uses : For Curing Wounds: The powdered bark of the tree is used for treatment of wounds specially those infected and lacerated ones forming pus.
21. Binomial : *Soymida febrifuga* (Roxb.) A. Juss.
 Family : Meliaceae
 Habit : Tree
 Local name : Rohini
 Parts Used : Stem Bark
 Ethnomedicinal Uses : For Rheumatism: Paste made from the grinded bark is applied to get relief from muscular and joint pain.
22. Binomial : *Sterculia urens* Roxb.
 Family : Sterculiaceae
 Habit : Tree
 Local name : Genduli
 Parts Used : Gum
 Ethnomedicinal Uses : For Dysentery: The gum mixed with sugar is administered to patient suffering from dysentery.
23. Binomial : *Strychnos nux-vomica* L.
 Family : Loganiaceae
 Habit : Tree
 Local name : Kochila
 Parts Used : Stem Bark
 Ethnomedicinal Uses : For Epilepsy: The infusion of bark is given in epilepsy.
24. Binomial : *Terminalia alata* Heyne ex Roth.
 Family : Combretaceae
 Habit : Tree
 Local name : Asana

- Parts Used : Leaves
Ethnomedicinal Uses : *For Dandruff*: Paste made from petiole of the leaf is used against dandruff.
25. Binomial : *Terminalia bellirica* (Gaertn.) Roxb.
Family : Combretaceae
Habit : Tree
Local name : Bahada
Parts Used : Fruit
Ethnomedicinal Uses : *For Ophthalmia*: Fruit decoction along with honey is used to cure ophthalmia.
26. Binomial : *Terminalia chebula* Retz.
Family : Combretaceae
Habit : Tree
Local name : Harida
Parts Used : Fruit
Ethnomedicinal Uses : *For Cough & Cold*: Dried fruit is taken for cough and cold.
27. Binomial : *Tridax procumbens* L.
Family : Asteraceae
Habit : Herb
Local name : Bishalya karani
Parts Used : Leaves
Ethnomedicinal Uses : *For Headache and stop Bleeding*: Leaf juice is applied externally on injuries to arrest bleeding and a poultice of the leaves is applied on the forehead to treat headache.
28. Binomial : *Woodfordia fruticosa* (L.) Kurz
Family : Lythraceae
Habit : Shrub
Local name : Dhataki
Parts Used : Root
Ethnomedicinal Uses : *For Gastro-intestinal disorder*: Root paste is useful against gastro-intestinal disorder and loose motion of children.
29. Binomial : *Wrightia tinctoria* (Roxb.) R.Br.
Family : Apocynaceae
Habit : Tree
Local name : Pita karuan
Parts Used : Latex
Ethnomedicinal Uses : *For Toothache*: Milky latex is used as an external application on base of teeth.
30. Binomial : *Zingiber montanum* (Koenig) Dietr.
Family : Zingiberaceae
Habit : Herb
Local name : Bano ada
Parts Used : Rhizome
Ethnomedicinal Uses : *For Cholera*: The rhizome mixed with black pepper is used in cholera and for extraction of intestinal worms.

The investigations revealed the medicinal plants of 30 species of 28 genera belonging to 23 families. Combretaceae is the dominant family (3 spp.), followed by Apocynaceae, Aanthaceae, Asclepiadaceae, Papilionaceae, Euphorbiaceae and Sterculiaceae, each with two species. The other families contributed with one species. Among all the species, trees are found to be more (15) followed by herbs (10), shrubs (4) and climber (1). The use of plant resources as remedies is probably an ancient as man himself. The aforesaid uses are the ones practiced in day-to-day life of tribals living in forests. The use of the traditional medicine is widespread in this region with higher percentage of the population relying on it. This is because of lack of modern medical facilities available in this region and the expensive Medicare system which these tribal

people are unable to afford.

Conclusion

Traditional healthcare practices of indigenous people pertaining to human health are termed as ethnomedicine. Ethnomedicine is the mother of all other systems of medicine. Recently the importance of these traditional medicines has been realized worldwide as some of them proved to be very effective (Marini-Bettolo, 1980) and some other prescriptions of these traditional healers may be of benefit to human kind when thorough scientific analysis is conducted into their properties. The study revealed that whatever knowledge on plants exists with the people of Rayagada district, they are on fast declining because lack of interest of local youth to learn the traditional knowledge from the old herbal healer. The highly interesting findings require further research, while the efficacy of the various indigenous practices will need to be subjected to pharmacological validation. Therefore, greater efforts are required to document traditional knowledge of the local people so as to prepare a comprehensive account of it, which will open new vistas in plant research.

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References

- Abraham, Z. 1981. *Glimpses of Indian Ethnobotany*, Oxford & Publishing Co., New Delhi, pp. 308-320.
- Atal, C. K. and Kapur, B. M. 1982. *Cultivation and Utilization of Medicinal and Aromatic Plants*, Regional Research Laboratory (CSIR), Jammu-Tawi, India.
- Bentley, R. and Trimen, H. 1980. *Medicinal Plants*, Vol. I-IV, J. & A. Churchill, London.
- Das, P. K. and Misra, M. K. 1987. Some medicinal plants used by the tribals of Deomali and adjacent areas of Koraput district, Orissa. *Indian Journal of Forestry*, 10: 301-303.
- Das, P. K. and Misra, M. K. 1988a. Some medicinal plants among Kondhas around Chandrapur (Koraput). *Journal of Economic and Taxonomic Botany*, 12: 103-109.
- Das, P. K. and Misra, M. K. 1988b. Some ethnomedicinal plants of Koraput district, Orissa. *Anticent Science of Life*, 8: 60-67.
- Das, P. K. and Misra, M. K. 2000. Vegetation and floristic studies on Koraput district of Orissa. In: *Higher Plants of Indian Sub-continent*, Vol. ix: 115-130, Bishen Singh Mahendra Pal Singh, Dehra Dun, India.
- Dash, S. S. 1994. *Ethnobotanical study of Narayanapatna area of Koraput district, Orissa*. M.Phil. Dissertation, Berhampur University, Berhampur, Orissa.
- Hemadri, K. 1991. *Medico-Botanical Exploration of Phulbani and Koraput Districts of Orissa*, Central Council for Research in Ayurveda and Siddha, New Delhi, India.
- Hemadri, K. and Rao, S. S. 1989. Folklore claims of Koraput and Phulbani districts of Orissa state. *Indian Medicine*, 1: 11-13.
- Marini-Bettolo, G. B. 1980. Present aspects of the uses of plants in traditional medicine. *Journal of Ethnopharmacology*, 2: 5-7.
- Sandhya, B., Thomas, S., Isabel, W. and Shenbagarathai, R. 2006. Ethnomedicinal plants used by the

- Valaiyan community of Piranmalai Hills (Reserved Forest), Tamil Nadu, India. – A pilot study. *African journal of Traditional, Complementary and Alternative Medicines*, 3(1): 101-114.
- Satyavati, G. V., Gupta, A. K. and Tandon, N. 1987. *Medicinal Plants of India*, Indian Council of Medical Research, New Delhi, India.
- Saxena, H. O. and Brahmam, M. 1996. *The Flora of Orissa*, Vol. I-IV, Orissa Forest Development Corporation, Bhubaneswar, India.
- State of the Environment Report. 2001. Ministry of Environment & Forests, Government of India, New Delhi, pp. 77-79.
- Subramoniam, A. and Pushpangadan, P. 1995. Ethnopharmacological validation of traditional medicines. In: *Glimpses of Indian Ethno-pharmacology* by Pushpangadan P, Nyman U, George V, (ed.). TBGRI, Thiruvananthapuram, pp. 351-360.