

**ANTIPYRETIC ACTIVITIES OF SOME ETHNOMEDICINAL PLANTS USED BY THE
TRIBALS OF BARGARH DISTRICT IN WESTERN ODISHA****Dr. Sunil Kumar Sen^{1*} and Dr. Lalit Mohan Behera²**¹Department of Botany, Panchayat College, Bargarh: 768 028, India.²Ex-Reader in Botany, Modipara (Near Water Tank), Sambalpur: 768 002, India.

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Dr. Sunil Kumar SenDepartment of Botany,
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768 028, India.**ABSTRACT**

Ethnobotany is the study of relationship between plants and people of our surroundings. Since prehistoric times medicinal plants have been used virtually in all cultures as a source of medicine. Hundreds of plants are mentioned in ayurvedic and scientific literatures for their use as food, clothes, medicines, shelter, other house-building materials, faith and believes. Those plants are mostly available in wild, but some of them are planted in the garden as a major towards primary healthcare by the urban people. The present study was undertaken to record information on some ethnomedicinal plants collected from different forest pockets of Bargarh district in Western Odisha. The study provides information on 38 plant species belonging to 29 families used as antipyretic herbal medicine. In spite of modernization process, the tribals and other village people of the district still have faith in the efficacy of indigenous medicinal plants. Botanical name, family, local name, plant part used, dosages and mode of applications are provided for each plant species.

KEYWORDS: Antipyretic, Ethnomedicine, Tribals, Bargarh district.**INTRODUCTION**

The term ethnobotany has been derived from ethnology (study of culture) and botany and it was coined by Hershberger in 1895. Ethnobotany has been defined in various ways by the scientists and above all it is the scientific study of the relationship between plants and human race. In India the plants have been used for their medicinal value, since time immemorial. Indian heritage of human is one of the oldest traditions of human civilization. The documentations of medicinal plants in India date back to the Vedic period.

Medicinal plants are commonly used in traditional medicine for treating and preventing ailments and diseases. Hundreds of medicinal plants species are used worldwide. A status report on Ethnobiology in India published by the Ministry of Environment and Forests, Govt. of India has reported 7500 plants species used by tribals and herbal medicine practitioners for medicinal purposes.^[1] (Anonymous, 1994). For centuries people have been using traditional knowledge or indigenous knowledge on the basis of their requirements and resources available.

Study area

Odisha is a State in eastern region of India and is diversified with abundance natural vegetation. Out of 30 districts in the State, Bargarh is one of them and one among 10 districts of Western Odisha. It lies between 20° 43' to 20° 41' North latitude and 82° 39' to 83° 58' East

latitude. The district is covered mostly by dry deciduous forests and moist deciduous type in some specified places. The total geographical area of Bargarh district is 5837 Sq km., out of which the total forest coverage in the district is 269.329 Sq km. As per 2011 census the total population in the district is 14, 81, 255 where as the tribal population is 2, 81,135. The dominant tribal group of the district are *Sahara (Saora)*, *Binjhal*, *Gond* and *Kondh*. The tribals and the people of other community mostly depend upon the agriculture and surrounding forest resources for their day to day life.

MATERIALS AND METHODS

The study involves intensive explorations and critical study of plant species in Bargarh district. Regular field trips were made at regular intervals to different forest and other rural areas of the district. Ethnobotanical information was gathered through interactions with tribals and rural people including village head, experienced men and women, shepherd boy. Also interactions were made by local traditional healers to tap the information of medicinal plants commonly used by these traditional healers by questionnaire. A number of group discussions were also conducted during the period of investigation. The information provided by the tribals and rural people has compared with the published scientific literatures.^[2-20]

Enumeration

This study involves checking and rechecking of particular information on medicinal uses of plants claimed by different dwellers of the same area in different pockets. The collected plant specimens were identified with the help of flora books.^[21,22] The plant species are arranged alphabetically with correct botanical names followed by family in parenthesis, local name, locality and voucher number, parts used, dosages and mode of administration. The herbarium specimens have been deposited in the herbarium of Botany Department, Panchayat College, Bargarh, Odisha.

Achyranthes aspera L. (Amaranthaceae) 'Kukurdanti', Nrusinghnath-465

Root decoction is taken once daily to cure fever. Root is collected at the time of Solar eclipse and is tied to the arm or hung around the neck to relieve all type of fever.

Aegle marmelos (L.) Correa (Rutaceae) 'Bel', Nrusinghnath-183

Bark decoction is taken with seed powder of *Piper longum* and honey twice daily to cure fever.

Ailanthus excelsa Roxb. (Simarubaceae) 'Mahalim', Ainlapali-100

Leaflets (nine to eleven) are boiled in water (500 ml) till it becomes 100 ml. The decoction (10 ml) is taken thrice a daily for 3-5 days in case of malaria.

Allium sativum L. (Liliaceae) 'Lesun', Udepali-529

Cloves (7 numbers) crushed and boil in a glass of water to reduce it to one fourth and filtered. The filtrate is taken once daily to cure post-natal fever.

Andrographis paniculata (Burm.f.) Wallich *ex* Nees (Acanthaceae) 'Buin-leem', Make a separate line with Leaf powder (5gm) with warm water is taken 1-2 times daily to cure fever.

Annona reticulata L (Annonaceae) 'Sita-badhal', Kharmunda-218

Leaf paste (5gm) with sugar candy is given to children to cure fever. Leaves decoction is taken twice daily to cure fever.

Azhadirachta indica A. Juss. (Meliaceae) 'Leem', Nrusinghnath- 586

Equal amount of root, leaf and bark are crushed to paste and the paste (1 teaspoon) with honey is taken once daily for 5-7 days to cure fever.

Barleria prionitis L. (Acanthaceae) 'Kantamalti', Nrusinghnath-468

Equal amount of root, stem and leaves are boiled together to obtain decoction. The decoction (4 teaspoon) is taken to once daily to cure fever.

Blumea lacera (Burm.f.) DC. (Asteraceae) 'Bad-poksungha', Nrusinghnath-175

Whole plant extract is taken 2 times daily with honey to cure fever.

Butea monosperma (Lam.) Taub. (Fabaceae) 'Phalsa', Ramkhol-378

Bark decoction (2 teaspoon) along with honey is taken once daily to cure fever

Caesalpinia bonduc (L.) Roxb. (Caesalpinaceae) 'Gil', Ramkhol-239

Fruit pulp (250mg) with *Tinospora cordifolia* stem extract (1 teaspoon) and honey (1 teaspoon) is given to children up to 12 years (the dose of medicine is double in case of adults and above 12 years) once daily for 3 days. Leaf extract with honey is taken once daily to cure fever.

Cissampelos pareira L. (Menispermaceae) 'Akanbindhi', Ramkhol-733

Root is crushed with water and the paste (1 teaspoon) with honey is taken twice daily to cure fever.

Coriandrum sativum L. (Apiaceae) 'Dhania', Ainlapali-301

Leaves of the plant and leaves of *Trichosanthes dioica* are boiled together and the decoction with honey is taken twice daily to cure fever due to cold.

Ficus religiosa L. (Moraceae) 'Papal' Khandijharan-319

Leaf decoction with honey or sugar candy is taken once daily to cure fever.

Gmelina arborea Roxb. (Verbenaceae) 'Gmbher', Nrusinghnath-178

Fruit pulp decoction (2 teaspoon) with sugar (1 teaspoon) is taken 2 times daily to cure fever due to inflammation. Root decoction (3-4 teaspoon) is taken 2 times daily to cure fever. Bark decoction with fruit powder of *Piper longum* and rhizome extract of *Zingiber officinale* is taken once daily to cure fever.

Hedyotis corymbosa L. (Rubiaceae), 'Gorpodia', Ainlapali-107

Whole plant extract mixed with the power of *Piper nigrum* fruit (3-5 number) and honey and taken twice daily in empty stomach to cure fever.

Heliotropium indicum L. (Boraginaceae) 'Hatisundh', Nrusinghnath-422

Leaf extract (3-6ml) is taken 2 times daily to cure fever.

Holarrhena pubescens (Buch.-Ham.)Wall *ex* G.Don (Apocynaceae) 'Kure', Kamgaon- 247

Bark decoction (2 teaspoon) is taken with honey 2 times daily to cure fever.

Ipomoea eriocarpa R. Br. (Convolvulaceae) 'Musakani', Nrusinghnath-361

Leaf extract (10 ml) of the plant and leaf extract of *Tinospora cordifolia* are taken together once daily to cure fever.

Lawsonia inermis L. (Lythraceae) 'Benjati', Nrusinghnath-143

Bark paste along with honey and seed powder of *Piper nigrum* is taken twice daily to cure fever.

Leucas aspera L. (Lamiaceae) 'Gubhi', Ramkhol-730
Leaves are pounded together with black pepper (*Piper nigrum* L.) & made into pills of pea seed size. This pill is given thrice a day for 7 days for malaria.

Lygodium flexuosum (L.) Sw. (Lygodiaceae) 'Kala mahajal', Nrusinghnath- 339
Root paste (5-10gm) or root decoction (10ml) is taken 3 times daily for 3-7 days to cure fever.

Melastoma malabathricum L. (Melastomaceae) 'Kharsinia', Nrusinghnath-187
Root paste (1 teaspoon) with honey is taken 2-3 times daily to cure fever.

Nyctanthes arbor-tristis L. (Oleaceae) 'Kharkhas', Udepali-533
Leaf extract (2 teaspoon) with *Zingiber officinale* rhizome extract and sugar candy once daily for at least 7 days to cure intermittent fever. Seed paste with dried rhizome powder of *Zingiber officinale* and fruit powder of *Piper nigrum* are taken together once daily for 21 days to cure intermittent fever.

Ocimum tenuiflorum L. (Lamiaceae) 'Tulsi', Nrusinghnath- 352
Leaf extract with honey is taken twice daily to cure fever.

Ocimum basilicum L. (Lamiaceae) 'Kaladahana', Nrusinghnath-142
Leaf decoction (10ml) is taken 2-3 times daily to cure fever.

Operculina turpethum (L.) Silva-Manso (Convolvulaceae) 'Tihidi', Ramkhol- 370
Root powder (3gm) with honey (1 teaspoon) is taken 1-2 times daily to cure fever.

Oroxylum indicum (L.) Vent. (Bignoniaceae) 'Phapen', Ramkhol-718
Bark decoction (1-2 teaspoon) is taken twice daily to cure fever.

Phyllanthus fraternus Webster (Euphorbiaceae) 'Badi aonla', Udepali-383
Equal amount of whole plant, *Zingiber officinale* rhizome and *Coldenia procumbens* (whole plant) are boiled together. The decoction (15-20ml) is taken 2-3 times daily to cure fever.

Pterocarpus marsupium L. (Fabaceae) 'Bija', Ramkhol-376
The gum in small quantity is mixed with sugar and water. This mixture is taken twice daily as cure for fever.

Pueraria tuberosa (Roxb. ex Willd.) DC. (Fabaceae) 'Bhin Kakharu', Nrusinghnath- 192

Tuber paste (1-2 teaspoon) is taken 2-3 times daily to cure fever.

Solanum virginianum L. (Solanaceae) 'Bheji baigan', Barhaguda-389
Equal amount of whole plant, bark of *Glycirriza glabra*, bark of *Holarrhena pubescens* and rhizome of *Curcuma longa* (5gm) are boiled together. The decoction (5-10ml) is taken thrice daily for 2-3 days to cure fever. Fruit decoction with honey is taken once daily to cure fever.

Stereospermum chelonoides (L.f.) DC. (Bignoniaceae) 'Padhel', Khajuria-599
Bark decoction (10-15ml) is taken along with rhizome extract of *Zingiber officinale*, *Piper longum* seed powder and honey once daily to cure fever.

Terminalia arjuna (Roxb.) Wight & Arm. (Combretaceae) 'Ka', Khandijharan- 316
Fruit is tied on the waist to cure fever due to evil spirit.

Tinospora cordifolia (L.) Merr. (Menispermaceae) 'Gulchi', Ramkhol-232
Equal amount of matured stem of the plant, bark of *Thespesia lampas* and leaves of *Andrographis paniculata* are crushed together and boiled in water. The decoction (20-30ml) is taken twice a day for seven days to cure malaria. Stem extract (10 ml) is taken with honey to cure fever.

Trichosanthes dioica Roxb. (Cucurbitaceae) 'Putol', Khajuria- 362
Leaf powder (20 g) is boiled in a glass of water till it reduces to one fourth of a glass. The decoction mixed with rhizome extract of *Zingiber officinale* and honey is taken once daily to cure fever. Root collected on Sunday is tied to the arm with the help of thread to get relief from fever.

Vitex negundo L. (Lamiaceae) 'Nirguni', Ramkhol- 369
Leaf decoction (50ml) mixed with honey is taken twice daily to cure intermittent fever.

Zingiber officinale Rosc. (Zingiberaceae) 'Ada', Barhaguda- 390
Rhizome extract is taken with honey twice daily in empty stomach to cure fever due to cold.

RESULTS AND DISCUSSION

The present study shows 38 ethnomedicinal plants belong to 29 families and 37 genera were used as antipyretic herbal medicine by the tribals and people of other communities in Bargarh district. Out of 38 species the tree species are maximum (14 species) followed by herbs (12 species) and shrubs and climbers (6 species each) (Fig. 1). Of all these leaf was found to be used in maximum cases (15 cases) followed by root (8 cases), bark (7 cases), whole plant (4 cases), stem and fruit (3

cases each), rhizome, tuber, bulb, seed and gum (one case each), a combination of root, leaf and bark (one case) and root stem and leaf (one case) (Fig. 2). Besides

one interesting data has been observed that the plants are mostly used singly in 32 cases and in 15 cases these are used with the combination of other plant parts.

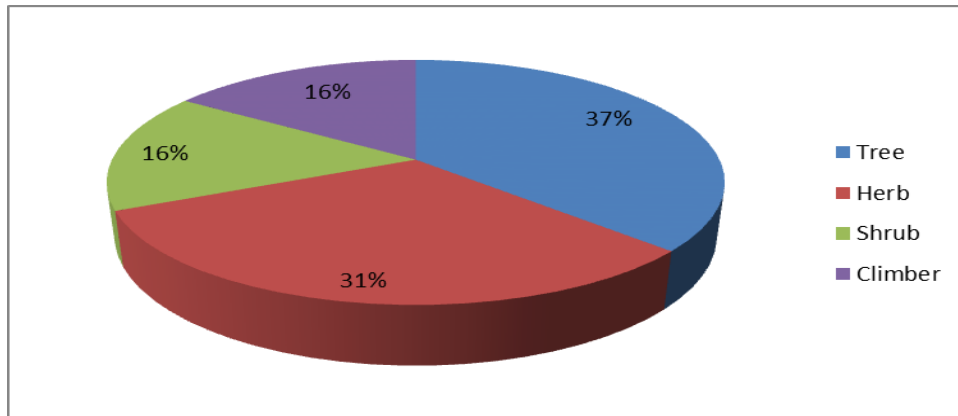


Figure 1: List of habits of plants used as antipyretic herbal medicine.

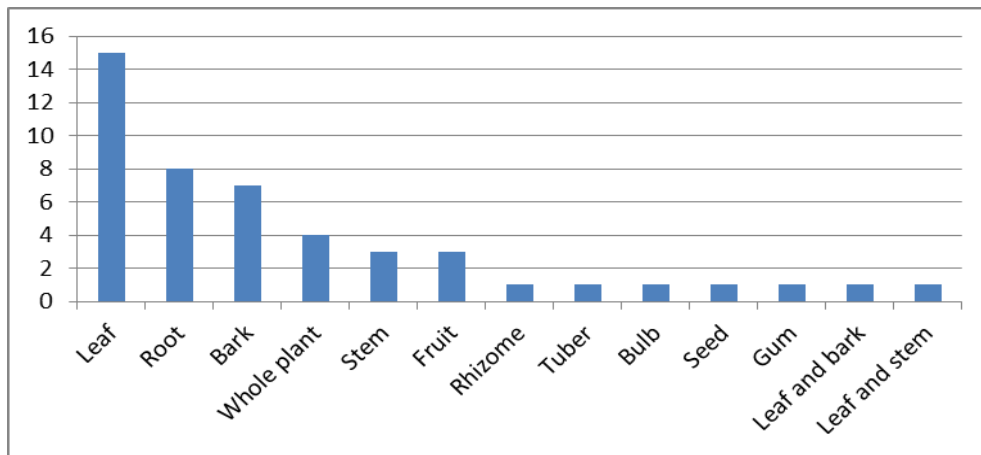


Figure 2: List of plant parts used as antipyretic herbal medicine.

The traditional healers used the plants or plant parts in various forms such as paste, powder, decoction, extract and also by tying the plant parts to the body of the patients. The plant parts are used in the form of decoction is maximum (22 cases) followed by paste (10

cases), extract (9 cases), powder and touch therapy (3 cases each) (Fig.3). Forty-seven prescriptions are reported from 38 plant species, out of which 44 prescriptions are used orally and in 3 prescriptions the plant part is tied to the body of the sufferer.

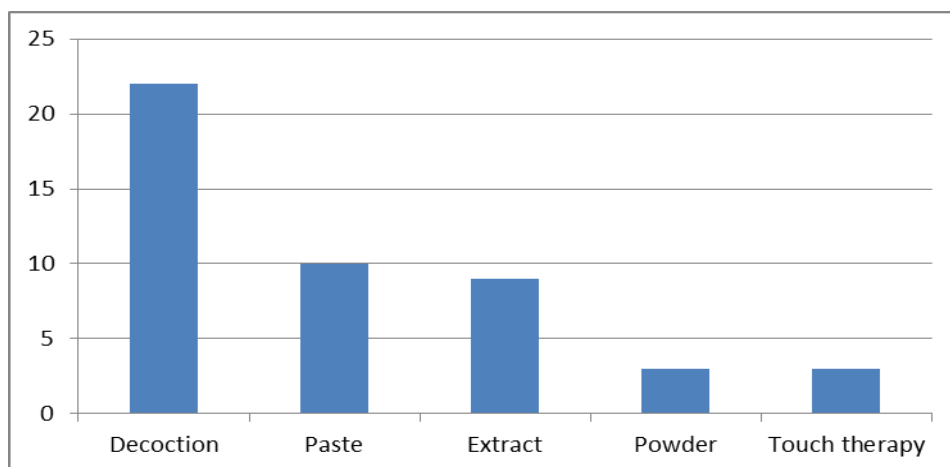


Figure 3: List of plant parts used as antipyretic herbal medicine in various forms.

CONCLUSION

Medicinal plants are used since time immemorial. A vast number of populations in our country are living in the villages and most of them belong to poor class and mainly depending on the herbal medicine as these are either available in their close vicinity or at a low cost without or with little side effects. Besides the tribals believes on the efficacy of the herbal medicines and the high cost of the modern medical system for treatment that is unaffordable by tribal mass. Most of the modern medicines are derived the traditional herbal plants. Medicinal plants play an important role in providing knowledge to the researchers in the field of ethno botany and ethno pharmacology, so this research article will attract the attention of ethnobotanists, phytochemists and pharmacologists for further critical investigation of medicinal plants present in the district.

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REFERENCES

1. Anonymous. Ethnobotany in India, A Status reports, All India coordinated research project in ethnobotany, New Delhi; Ministry of Environment and Forrest. Government of India.
2. Panigrahi G. Gandhamardan Parbat Orissa - A potential source of important indigenous drugs. Bull Reg Res Lab Jammu, 1963; 1: 111-116.
3. Jain SK. Some magico-religious beliefs about plants among adibasis of Orissa. Adibasi, 1970-71; 12: 38-44.
4. Rai Choudhury HN, Pal DC, Tarafdar CR. Less known uses of some plants from the tribal areas of Orissa. Bull Bot Sur India, 1975; 17: 132-136
5. Saxena HO, Dutta PK. Studies on ethnobotany of Orissa. Bull Bot Sur India, 1975; 17: 124-131.
6. Saxena HO, Brahmam M, Dutta PK. Survey of aromatic and medicinal plants in Orissa, J Orissa Bot Soc, 1979; 1: 19-20.
7. Sharma PC, Murthy KS, Bhat AV, Narayanappa D, Prem Kishore. Medicinal-lores of Orissa-I, Skin Diseases. Bull Med-ethnobot Res, 1985-86, 6: 93-101.
8. Brahmam M, Saxena HO (1990) Ethnobotany of Gandhamardan Hills- Some Noteworthy Folk-Medicinal uses. Ethnobotany, 1990; 2: 71-79.
9. Jain SK. Dictionary of Indian Folk Medicine and Ethnobotany. New Delhi; Deep Publications, 1991; 311.
10. Kirtikar KR & Basu BD. Indian Medicinal Plants. 4 Vols. (Repn. Edn). Allahabad; Lalit Mohan. Basu, 1991.
11. Ambasta SP, Ram Chandran K, Kashyappa K, Chand R The Useful Plants of India. New Delhi; Publication and Information Directorate, CSIR, 1992; 918.
12. Girach RD. Medicinal plants used by kondh tribes of District Phulbani (Orissa) in Eastern India. Ethnobotany, 1992; 4: 53-66.
13. Mishra RC. Medicinal Plants among the tribal of upper Bonda region, Koraput (Orissa). Journal of Economic and Taxonomic Botany (Additional Series), 1992; 10: 275-279.
14. Satpathy KB. Panda PC. Medicinal uses of some plants among the tribal of Sundargarh District, Orissa. J Eco Tax Bot (Additional Series), 1992; 10: 241-249.
15. Sahoo AK. Mudgal V. Less Known Ethnobotanical uses of plants of Phulbani District, Orissa, India. Ethnobotany, 1995; 7: 63-67.
16. Chopra RN, Nayyar SL, Chopra IR. Glossary of Indian Medicinal Plants (Repn. Edn.). New Delhi; National Institute of Science Communication, CSIR, 1996; 330.
17. Mishra RC, Das P. Inventory of rare and endangered vascular plants of Gandhamardan hill ranges in western Orissa. J Eco Tax Bot, 1998; 22(2): 353-357.
18. Pal DC, Jain SK. Tribal Medicine. Calcutta; NayaProkash, 1998; 317.
19. Joshi SG. Medicinal Plants (Reprint edition). New Delhi; Oxford and IBH publishing Co. Pvt. Ltd., 2006; 419.
20. Patil DA. Herbal Cures: Traditional Approach. Jaipur, India; Aavishkar Publishers, Distributors, 2008; 396.
21. Haines HH. The Botany of Bihar and Orissa. London; Arnold & Son & West Nirman Ltd., 1921-25; 1348.
22. Saxena HO, Brahmam M. The Flora of Orissa. Bhubaneswar; Regional Research Laboratory, Orissa and Orissa Forest Development Corporation Ltd., 1994-96; 2918.