

Review



## ROOTS ROOT OUT DISEASES: A STUDY ON ETHNOMEDICINAL USES OF ROOT IN BARGARH DISTRICT OF ODISHA (INDIA)

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### ABSTRACT

There is a natural cure for every ailment associated with the plants. Large number of plants grows around human habitation and many of those are neglected because of ignorance about their therapeutic and other utility. Ethnomedicine is the system of medicinal practice based on traditional knowledge used by 65 percent of Indian population for maintaining health and curing diseases. Ethnomedicinal survey among 13 tribes in Bargarh district reveals the frequency of use of medicinal plants for cure of many diseases. The present paper records ethnomedicinal values of 41 plant species belonging to 38 genera and 33 families. A list of plant species along with their botanical names, family, local names, parts used and the mode of administration has been enumerated.

**KEY WORDS:** Root, Ethnomedicine, Tribals, Bargarh

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## INTRODUCTION

Odisha, with its 6 million tribal populations of 62 different ethnic groups, possesses rich empiric knowledge about plant wealth. Bargarh is one among ten districts of western Odisha lies between 20° 40' - 21° 49' N latitude and 82° 45' - 83° 48' E longitude. The district has land coverage of about 5837 sq kms. It is surrounded on the north by Jharsuguda and Sundargarh, south by Bolangir, Sonapur and Nuapada, west by Sambalpur district and east by Chhattisgarh state. Bargarh, previously under Sambalpur district, has been elevated to the status of a separate district on 1<sup>st</sup> April, 1993. The total population in the district is 14,81,255 comprising a tribal population of 281,135 (as per census 2011). There are 13 tribes namely *Binjhal*, *Dharua*, *Gond*, *Kalanga*, *Kharia*, *Kisan*, *Kondh*, *Kuli*, *Mirdha*, *Munda*, *Oran*, *Parja* and *Sahanra* inhabiting in the district dominated by *Sahanra (Saora)*, *Binjhal*, *Kondh* and *Gond*.

There is a symbiotic relationship between human beings and plant community since the dawn of civilization. Since ancient times, exploitation of plants continues till the day for the benefit of mankind<sup>1</sup>. Plants have become the source of shelter, clothes, food and medicine to men. At present, about 65% of Indian population is dependent on the traditional system of medicine<sup>2</sup>. Ethnomedicine is the system for maintaining health and curing diseases based on folk beliefs; traditional knowledge skills, methods and practices. The tribals and other rural people residing close to forests use a number of plants for various purposes available in their vicinity. The plant parts like root, tuber, rhizome, leaf, stem, flower, fruit, latex, gum, resin etc. are used for the preparation of herbal medicines. The local herbal medicine practitioners such as *Kabiraj*, *Vaidya* and *Guniyan* collect different types of plant or plant parts for the preparation of drugs. The present paper highlights on the use of roots of plants either collected or cultivated in the locality and use them for the cure of various diseases.

### Study Site

The study area is confined to Bargarh district. The Barapahad hill range, comprising of 12 hills (*Bara* means twelve and *pahad* means hill), covers an area of 777 sq km, that encircles the famous Debrigarh Wildlife Sanctuary (covering an area of 347 sq kms), at the North-west of Bargarh district. It attains a height of 2,267 feet (691.1m) at the peak of Debrigarh. The Gandhamardan hill range is located in the Paikamal block of Bargarh

district, which is about 112 km away from district head quarters of Bargarh at south west direction. It stands as the boundary wall between Bargarh and Bolangir district. Geographically, the hill range is considered as the north-west boundary of Eastern Ghats. The hill range comprises irregular undulating lofty hills ranging from 320m -1020m above the mean sea level. The flora of Gandhamardan exhibits a very rich and varied assemblage of species due to lofty hill topography with a central flat plateau, abundant spring system, dense forest-clad habitat and diverse vegetation resources which offer most congenial environment for the growth of plants of rare in nature, phytogeographic, economic, and medicinal importance<sup>3</sup>. Jhanjapahad hill range is another important forest pocket located towards the west of Padampur subdivision of the district and it is extended upto the Chhattisgarh state.

## MATERIALS AND METHODS

Ethnomedicinal surveys were conducted repeatedly in different forest localities and village suburbs. Before launching into the field work, a friendly atmosphere was created with some of the reputed tribals of the locality. The local informants were village headman, persons working in the field, the herbal medicine practitioners such as *Kabiraj*, *Vaidya* and *Guniyan* and village priest such as *Jhankar*, *Deheri* and *Desari*. They were contacted and interviewed and only the specific and reliable information cross-checked with many informants has been included in the study. To establish the authenticity of information about the medicinal uses of the collected plant species during the field study repeated verification of data from different informants and in different areas at different times was done. The information provided by the tribals and rural people have compared with the published scientific literatures<sup>4-20</sup>. The collected medicinal plants were identified with the help of flora books<sup>21-22</sup>. All the collected plant specimens have been preserved in the herbarium of Botany Department, Panchayat College, Bargarh. A list of plant species along with their botanical names, family in parenthesis, local names in inverted comma, locality and collection number, parts used and the mode of administration have been enumerated.

## ENUMERATION

1. *Abrus precatorius* L. (Fabaceae) 'Gunj', Barhaguda-55

Alti: Root paste is applied (*Alti* - reddish small boil like structure) over the affected part.

2. *Abutilon indicum* (L.) Sweet (Malvaceae) 'Pedipedica', Khajuria-392  
Smooth delivery: A piece of root is placed on the hair and at the same time root paste (5g) is taken during the time of labour pain.
3. *Acacia pennata* (L.) Willd. (Mimosaceae) 'Chil', Kharmunda-347  
Irregular menstrual cycle: Root decoction (1 cup) is taken 3 times daily for 3 days.
4. *Achyranthes aspera* L. (Amaranthaceae) 'Aphamarag', Nrusinghnath-465  
Bleeding Piles: Root paste (2-3 gm) with fruit (5-7 numbers) powder of *Piper nigrum* is taken once daily.
5. *Acorus calamus* L. (Araceae) 'Bacha', Godbhaga-666  
Epilepsy: Tuber powder (3g) with honey is taken 2 times daily.
6. *Andrographis paniculata* (Burm.f.) Wallich ex Nees (Acanthaceae) 'Bhuinleem', Barhaguda-267  
Itches: Root (3g) is crushed with fruit (5 in number) of *Piper nigrum* and is taken 2 times daily.
7. *Bambusa arudinacea* (Retz.) Willd. (Poaceae) 'Baunsh', Barhaguda-261  
Hair falling: Equal amount of root and bark ash of the plant and rhizome powder of *Zingiber officinale* are mixed together and is applied on hairs.
8. *Boerhaavia diffusa* L. (Nyctaginaceae) 'Gadhapurni', Nrusinghnath-469  
Cough and Bronchitis: Root paste (3gm) is taken three times daily.
9. *Cassia fistula* L. (Caesalpiniaceae) 'Sunari', Kuthikhoh-579  
Tuberculosis: Equal amount of root of the plant and root of *Caesalpinia bonduc* are crushed together and the paste (1 teaspoon) is taken 2 times daily.
10. *Chrysanthemum coronarium* L. (Asteraceae) 'Sebti', Ainlapali- 102  
Muscular pain: Root paste (1 teaspoon) is taken once daily.
11. *Cissampelos pareira* L. (Menispermaceae) 'Akanbindhi', Ramkhoh-733  
Earache and Toothache: Root collected on a Saturday or Sunday from the east of the plant is tied to the ear with a white thread.
12. *Costus speciosus* (Koenig.) Sm. (Costaceae) 'Keu', Ramkhoh-732  
Hiccough: Tuber of the plant and camphor (1:1/4) are crushed together and is taken with honey 2-3 times daily.
13. *Creteva magna* (Lour.) DC. (Capparidaceae) 'Barun', Khandijharan-320  
Kidney stone: Root powder (3gm) mixed with equal amount of cow ghee is taken once daily for 15 – 30 days.
14. *Curculigo orchioides* Gaertn. (Hypoxidaceae) 'Talmuli', Kharmunda-349  
Pimple: Root bark paste is applied in case of pimples. Root bark (5gm) is also taken with honey once daily.
15. *Cycas circinalis* L. (Cycadaceae) 'Udusmari', Bargarh- 68  
Alti: Root (Coralloid) paste is applied externally on the affected part.
16. *Cyperus rotundus* L. (Cyperaceae) 'Mutha', Kharmaunda-151  
Dysurea: Tuberous root powder (5g) with curd (butter free) is taken once daily.
17. *Diplocyclos palmatus* (L.) Jeffrey (Cucurbitaceae) 'Shibling', Ainlapali-297  
Indigestion and Dyspepsia: Equal amount of root and fruit of *Piper nigrum* are crushed together in water and taken in empty stomach for 7 days.
18. *Elephantopus scaber* L. (Asteraceae) 'Mayurchulia', Samardhara-693  
Kidney stone: Root (10g) is crushed with rice-washed water and taken 2 times daily in empty stomach.
19. *Erythrina suberosa* Roxb. (Fabaceae) 'Baldia', Ramkhoh-372  
Cattle wound: Root paste is applied externally on the affected part.
20. *Gloriosa superba* L. (Colchicaceae) 'Puraphul', Nrusinghnath-469  
Fever: A piece of tuber is worn round the neck with a red thread.
21. *Indigofera cassioides* Rottl. ex DC. (Fabaceae) 'Girel', Ramkhoh-398  
Piles : Root (about 3 inches long) paste is taken with milk once daily for 30 days.
22. *Indigofera tinctoria* L. (Fabaceae) 'Nili', Samardhara- 204  
Dental carries: Root powder is applied on the affected teeth.
23. *Jasminum sambac* (L.) Ait. (Oleaceae) 'Malli', Bargarh- 162  
Sterility: Root paste (5gm) is taken once daily for 7 days after menstrual cycle for 3 months.
24. *Lawsonia inermis* L. (Lythraceae) 'Benjati', Nrusinghnath-143  
Eye-sight problem: Root is rubbed on a stone and the paste is applied on the eyelid.
25. *Lepidagathis cristata* Willd. (Acanthaceae) 'Bhalupania', Khandijharan-194  
Eczema: Root extract and whole plant ash are mixed together and is applied on the affected part.
26. *Melastoma malabathricum* L. (Melastomaceae) 'Kharsinia', Nrusinghnath-187

Fever and Stomach disorder: Root paste (1 teaspoon) with fruit powder (1gm) of *Piper longum* and sugar candy are mixed together and taken 2 times daily.

27. *Mimosa pudica* L. (Mimosaceae)  
'Lajkurilata', Beherapali-228

Kidney stone: Root (4-5 inches long) decoction is taken in empty stomach 2 times daily for 15- 30 days.

28. *Moringa oleifera* Lam. (Moringaceae)  
'Munga', Ramkhol-256

Kidney stone: Root decoction (4 teaspoon) is taken 3 times daily for 15 days.

29. *Oroxylum indicum* (L.) Benth. ex Kurz. (Bignoniaceae) 'Dhangrikhada', Ramkhol-718

Pox and Measles: Root bark paste is applied on the body to get rid from purities effect due to pox or measles.

30. *Orthosiphon rubicundus* (D. Don) Benth (Lamiaceae) 'Chaulchapi', Khandijharan: 455

Dysentery: Tuberous root (10g) paste is taken once daily for 7 days.

31. *Plumbago indica* L. (Plumbaginaceae)  
'Rakta-chintamul', Nrusinghnath-487

Rheumatism: Root bark (500mg-750mg) powder with seed oil of *Sesamum indicum* (10-12g) is taken for 30 days.

32. *Plumbago zeylanica* L. (Plumbaginaceae)  
'Dhob-chintamul', Nrusinghnath-423

Indigestion and Dyspepsia: Root powder (2g) of the plant, fruit powder (5g) of *Terminalia chebula* and a pinch of rock salt are mixed together and taken with warm water in empty stomach once daily for 3-5 days.

33. *Polycarpea aurea* Wight & Arn. (Caryophyllaceae) 'Pasanbhedi', Nrusinghnath: 480

Acidity: Root (5-10g) paste is taken 3 times daily.

34. *Rauvolfia serpentina* (L.) Benth. ex Kurz. (Apocynaceae) 'Patalgarud', Nrusinghnath-519

Hysteria and Rheumatism: Equal amount of root of the plant and fruit of *Piper nigrum* are crushed together and the power (2-3g) is taken with lukewarm water in empty stomach for 10-15 days and after a break of 5-7 days, it can be taken for another 15 days.

35. *Remusatia vivipara* (Roxb.) Schott (Araceae)  
'Mendhasingi', Nrusinghnath- 411

Rheumatism: Root paste is applied on the affected part.

36. *Sagittaria trifolia* L. (Alismataceae)  
'Kukurjivi', Khandijharan-313

Alti: Root paste is applied externally on the affected part.

37. *Senna tora* (L.) Roxb. (Caesalpiniaceae)  
'Chakada', Ramkhol-524

Leucorrhoea: Root is crushed in rice-washed water and filtered. The filtrate is taken 1-2 times daily for 15-30 days.

38. *Tephrosia purpurea* (L.) Pers. (Fabaceae)  
'Jharkulthia', Barhaguda-792

Spleen and Liver enlargement: Equal amount of root powder and fruit powder of *Terminalia chebula* are crushed together and the powder (5-10g) is taken in empty stomach for 7-15 days.

Menorrhagia: Root decoction (20-30ml) with honey is taken 2 times daily.

39. *Tragia involucrata* L. (Euphorbiaceae)  
'Bichhati', Ramkhol- 369

Indigestion: Root (3 inches long) is crushed and taken with warm water in empty stomach 2 times daily for 3-5 days.

40. *Vitex negundo* L. (Verbenaceae) 'Nirguni', Ramkhol- 369

Dry cough: Root extract (1 teaspoon) or decoction (2 teaspoon) is taken once daily for 7-15 days.

## RESULTS

Present study includes ethnomedicinal information on 40 plant species belonging to 37 genera and 32 families, which are used commonly as remedies for various ailments. Again these 30 plant species have 42 prescriptions, where 26 species are used singly (orally taken 14 species, externally applied 9 species and tied 3 species are to the body) and 16 species are used with other ingredients (orally taken 15 species and externally one species) as reflected in terms of their percentage in fig. 1 and 2 respectively. Besides, the herbal preparation is administered either as paste from 28 species, powder from 07 species, decoction from 04 species and tied to the body 3 species has been recorded in the present investigation (fig.3).

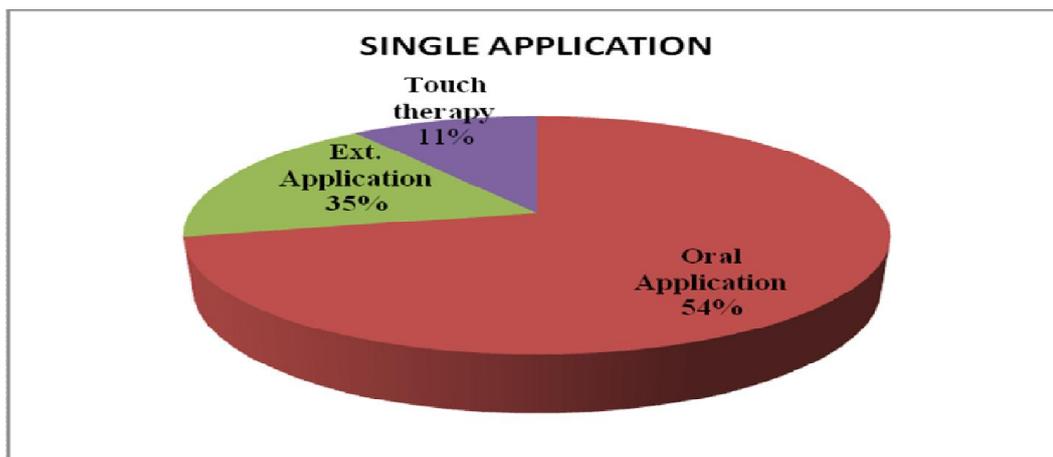


Fig.1 Percentage of plant part used singly

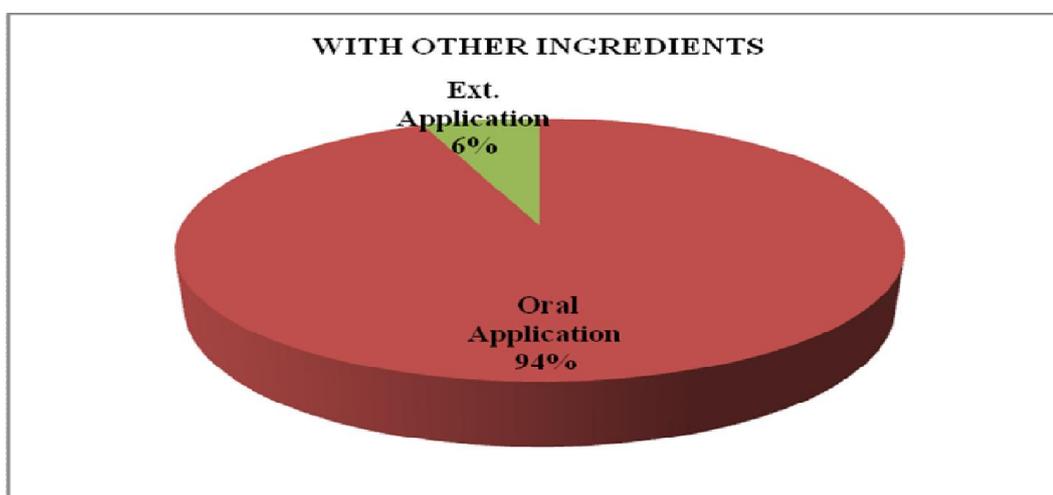


Fig.2 Percentage of plant part used with other ingredients

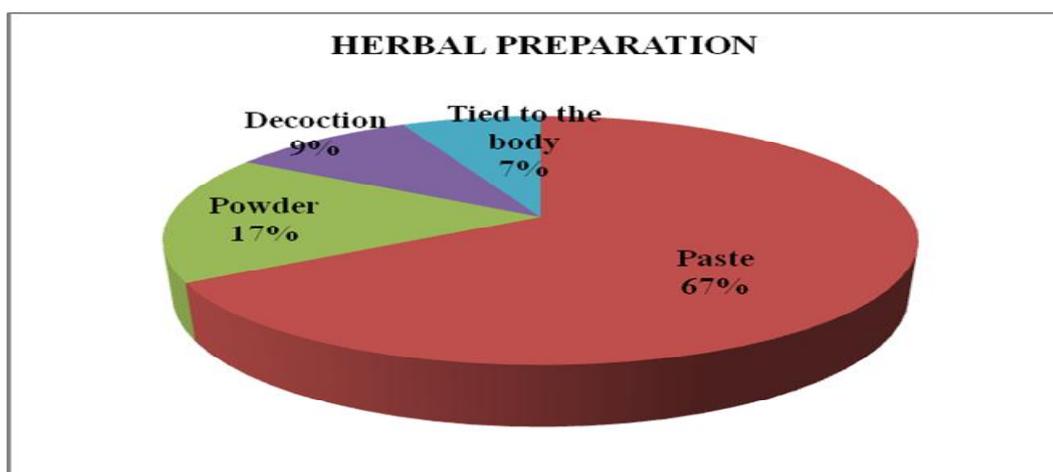


Fig.3 Percentage of herbal preparation administered

## CONCLUSION

Present study includes ethnomedicinal information on 40 plant species belonging to 37 genera and 32 families, which are used commonly as remedies for various ailments. Mostly the plant parts such as root, rhizome, tuber, stem, bark, flower, fruit, seed, latex, gum, resin etc. are used to prevent and cure diseases. The present paper highlights on the use of roots to cure several diseases by the rural population in different rural and forest areas of Bargarh district. Most of these plants are locally available as wild species. Plant species like *Cycas circinalis* is worth noting, not available in local forests. It is either cultivated or brought from other localities to be used for medicinal purposes. The information recorded about medicinal utility of the plants was compared with the earlier published ethnobotanical literatures. Notable among these diseases are cough, bronchitis, leucorrhoea, hiccough, dysentery, tuberculosis, kidney stone, rheumatism, sterility, abortion, dry cough, spleen enlargement and liver enlargement. However, due to up-rooting of plants for the collection of roots to be used as medicine causes a great loss to the plant diversity, destroying the plant population of those pockets. Attempts should be made to create awareness among the local people by organizing seminars,

group discussions, field visits and for promoting conservation of such plants with the help of Forest Department, local NGOs and self-help group. People should be motivated for cultivation of afore said plant species on priority basis to prevent the species from extinction.

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## AUTHOR'S CONTRIBUTIONS

On behalf of myself and my coauthor I would like to acknowledge that all authors have gone through the have approved it for publication in the said journal. Each author has contribution stating from field study to preparation of this manuscript. Hence there is no justification to rank them all.

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