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Green Leaves for Diarrhoeal Diseases Used by the Tribals of Kenojhar and Mayurbhanj District of Orissa, India

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Abstract

The present paper reports with 49 plant species belonging to 30 families, mostly used by the tribal people of Kenojhar and Mayurbhanj district of Orissa. The tribal population of the region primarily depends upon these plants for curing diarrhea. They are enumerated with binomial, family, local name, parts used and ethno medicinal uses. Further studies on chemical and pharmacological actions are suggested to validate the claims.

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Abstract

The present paper reports with 49 plant species belonging to 30 families, mostly used by the tribal people of Kenojhar and Mayurbhanj district of Orissa. The tribal population of the region primarily depends upon these plants for curing diarrhea. They are enumerated with binomial, family, local name, parts used and ethno medicinal uses. Further studies on chemical and pharmacological actions are suggested to validate the claims.

Introduction

Modern medical facilities are unable to reach the common people not only in this state/country but also the whole world. In Orissa as there is only one hospital for every 3300 sq. km. and one doctor for 2720 people. In such a situation people ordinarily resort to indigenous phytotherapeutic treatment which is known to common people from their ancient' heritage. Such circumstances provoked the authors to carry out a medico-ethno botanical survey of North Orissa (Kenjohar and Mayurbhanj districts), during the year 2002 to 2004 to find out the plants used for treatment of diarrhoeal diseases which exists in the folk lore of rural mass. Diarrhea diseases are of three types: Acute watery diarrhea, (majority of the cases); Dysentery (blood in the stool) and persistent Diarrhea. Diarrhea and other intestinal diseases are the leading causes of child and adult mortality in India. The most unfortunate part is that the percentage of the diarrhea patients is the highest among the people treated for various diseases in the hospitals and Public Health Centers of Orissa as observed in the Annual report of State Health Directorate, 2005 out of the 49 plants reported, 27 species are used for diarrhea, 17 for dysentery and 5 for both the ailments. The plants so reported in this paper, are arranged alphabetically according to the Oriya local names followed by the botanical names, family and mode of administration, which were collected by interviewing the experienced old people and the herbalists of the study area in tribal rich district of Orissa.

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 ;Behera, K.K.2006). 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 deep forest pockets of tribal villages of Kenojhar and Mayurbhanj district undertaken during 2004-2005 to collect information on the medicinal uses of diarrhea of different plant species. During field work, interviews were conducted with local knowledgeable villagers, the herbal healer called as˜*Vaidyas*â" (local physicians in Indian System of indigenous 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) Local name, d) Parts used and e) Ethnomedicinal uses.

Study Area

Keonjhar and Mayurbhanj district is situated in the biotic province, Chhotanagpur Plateau in the northern part of Orissa Keonjhar is L..ocated between 21^{o}1'N and 22^{o}10'N Latitude and 85^{o}11' E to 86^{o}22' E Longitude and Mayurbhanj is located 21^{0}16' and 22^{0}34' North Longitudes and between 85^{0} 40' and 87^{0} 11' East Longitudes., the elevation of the area ranges from 550 m to 670 m. Its spread over an area of 18,658 Sq. Kms. The physiography of the district gives a perfect platform for the tribal in sustaining their ethno-cultural identity. Tribal people are mostly inhabited in the deep forest area, depend on the forest resources for their livelihood (food, fodder and medicine).The study sides predominantly a tribal populated area with 56 % of tribal population . Forest area covers an extent of 66, 17.21 sq.km. About half of the study area of this district is covered by forests of Northern tropical moist deciduous type and contains Sal, Asan, Piasal, etc . The two 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. Anthropologically, its two main tribes, namely the Juangs and the Bhuyans carry a distinct and primitive past. The Juang claim themselves to be the most ancient tribe of the world. In spite of their modern ways of living, many aboriginal practices are still prevalent among them. There were 46 Scheduled Tribes in the district. Out of these the principal tribes were Bathudi, Bhuyan, Bhumij, Gond, HO, Juang, Kharwar, Kisan, Kolha, Kora, Munda, Oraon, Santal, Saora, Sabar and Sounti. These sixteen tribes constituted 96.12 % of the total tribal population of the district. The soil is mostly red throughout area studied and in the South there is a small patch of black cotton soil. The important minerals available in huge quantity in the study area are Iron-ore, Manganese and Chromites. The temperature ranges from 11.7Â° C during winter and about 37Â° C- 40Â° C in summer. The mean annual rainfall is 1805.5 mms . The bulk of the rain is in the month of August to October, while March to May are the driest months. Above all the area is having thick and green forests, extensive grassy lands and meadows, cloud kissing peaks, precipitous and sparkling waterfalls, meandering rivers, roaring tigers and trumpeting tuskers, fleeing deer and flying squirrels, talking myna and dancing peacocks et al including Similipal bioreserve which make a dreamland of Nature in the wilderness and an irresistible destination.

Results and Discussion

The data on medicinal plants, used in diarrhea diseases, which was collected from local inhabitants in Keonjhar and Mayurbhanj district, were analyzed. The enumeration and utilization of these plants are described below.

ENUMERATIONS OF PLANTS:

1. ***Mangifera indica* L.**
ORIYA NAME: Amba
FAMILY: Anacardiaceae
MODE OF ADMINSTRATION: Aqueous cold extract of tender leaves taken internally to check dysentery. Also bark ground to paste with water and taken twice daily to check diarrhea, effective for both in children and adults.

2. ***Spondias pinnata* (L.f) Kurz**
ORIYA NAME: Ambeda
FAMILY: Anacardiaceae
MODE OF ADMINSTRATION**:** Stem bark paste (20gm) along with curd was taken twice daily, in empty stomach as a cure for dysentery.

3. ***Oxalis corniculata* L.**
ORIYA NAME: Ambiliti
FAMILY: Oxalidaceae
MODE OF ADMINSTRATION: Raw leaf juice (50ml) taken twice a day for three days as a cure for chronic dysentery and diarrhea.

4. ***Valeriana jatamansi* Jones**
ORIYA NAME: Amrut Jata
FAMILY: Valerianaceae
MODE OF ADMINSTRATION: Leaf juice taken orally with honey, given for internal use to check diarrhea in children.

5. ***Achyranthes aspera* L.**
ORIYA NAME: Apamaranga
FAMILY: Amaranthaceae.
MODE OF ADMINSTRATION: Leaf paste with Gur or jaggery and butter/curd taken twice a day to cure blood dysentery.

6. ***Acacia nilotica* (L.) Willd.**
ORIYA NAME: Babula
FAMILY: Mimosaceae
MODE OF ADMINSTRATION: Leaf macerated with rice water, given for internal use orally to

consume about 50 ml each time, twice daily for 3 to 5 days to cure diarrhea.

7. ***Acorus calamus* L.**
ORIYA NAME: Bacha
FAMILY: Araceae
MODE OF ADMINSTRATION: Decoction of rhizome along with roots of *Angelonia grandiflora* taken twice a day to check diarrhoea.

8. ***Terminalia bellerica* (Gaertn.) Roxb.**
ORIYA NAME: Bahada
FAMILY: Combretaceae
MODE OF ADMINSTRATION: Powder prepared by burning the fruits, taken internally with rock salt in diarrhea.

9. ***Jatropha curcus* L.**
ORIYA NAME: Baigaba (*Dhala jahaji*)
FAMILY: Euphorbiaceae.
MODE OF ADMINSTRATION: Latex from the stem and leaf taken orally along with ripe banana once or twice a day to check dysentery in adults.

10. ***Jatropha gossypifolia* L.**
ORIYA NAME: Baigaba (Nali)
FAMILY: Euphorbiaceae.
MODE OF ADMINSTRATION**:** Aqueous extract of stem and bark taken orally twice a day to cure blood dysentery.

11. ***Ficus benghalensis* L.**
ORIYA NAME: Bara/Bata
FAMILY: Moraceae.
MODE OF ADMINSTRATION: Extracted Juice from aerial roots (Prop root) taken in empty stomach twice a day to cure dysentery in children.

12. ***Ziziphus mauritiana* Lamk.**
ORIYA NAME: Barakoli
FAMILY: Rhamnaceae
MODE OF ADMINSTRATION: Fruit pulp along with curd, pomegranate *(Punica granatum L.*) juice and til oil taken orally to cure blood dystentery.

13. ***Phyllanthus fraternus* Webster**
ORIYA NAME: Bhuin anla

FAMILY: Euphorbiaceae.
MODE OF ADMINSTRATION: Root paste administered to children (below two years) twice a day for three days in diarrhea.

14. ***Ailanthus excelsa*** **Desf.**
ORIYA NAME: Dakhina kabata/Mahala
FAMILY: Simaroubaceae
MODE OF ADMINSTRATION: Bark ground to paste and administered orally along with curd, twice a day for effective remedy in dysentery.

15. ***Punica granatum*** **L.**
ORIYA NAME: Dalimba
FAMILY: Punicaceae.
MODE OF ADMINSTRATION: Leaf, bud or unripe fruit is made to paste along with rice washed water 'and administered orally along with a minute pinch of opium. Half cup taken twice a day to check diarrhea.

16. ***Solanum viarum*** **Dunab**
ORIYA NAME: Dengabheji
FAMILY: Solanaceae.
MODE OF ADMINSTRATION: Leaf and root juice taken orally in dysentery twice daily for three days.

17. ***Ficus hispida*** **L.*f*.**
ORIYA NAME: Dimiri
FAMILY: Moraceae.
MODE OF ADMINSTRATION: Latex collected from cut wounds of the stem taken orally to cure blood dysentery/diarrhea.

18. ***Datura metel*** **L.**
ORIYA NAME: Dudura
FAMILY: Solanaceae
MODE OF ADMINSTRATION: Seeds are purified by soaking in cow urine for 12 hours. Then the seed coats are removed and cotyledons are boiled in cow milk and made to paste. The product is taken internally to cure chronic or persistent diarrhea and dysentery.
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19. ***Gmelina arborea*** **Roxb.**
ORIYA NAME: Gambhari
FAMILY: Verbnenaceae.
MODE OF ADMINSTRATION: Ripened fruit juice with sugar and pomegranate fruit juice taken

orally to cure dysentery.

20. ***Terminalia chebula* Retz.**
ORIYA NAME: Harida
FAMILY: Combretaceae
MODE OF ADMINSTRATION: Paste prepared from pericarp taken along with curd to cure diarrhoea.

21. ***Kalanchoe pinnata* (Lamk.) Pers.**
ORIYA NAME: Hemakakara/ Amarapoi
FAMILY: Crassulaceae
MODE OF ADMINSTRATION: paste along with three *nigrum* black peppers *(Piper L.*) administered orally twice a day to cure diarrhea.

22. ***Ludwigia perennis* L.**
ORIYA NAME: Jalatandula/Jalajali
FAMILY: Onagraceae.
MODE OF ADMINSTRATION: Leaves along with pomegranate, black berry *(Syzygium cuminii)* and Bela [*(Aegle marmelos* (L) Corr:] are boiled together. The aqueous extract is taken orally twice a day to cure chronic dysentery.

23. ***Breynia retusa* (Dennst.) Alston**
ORIYA NAME: Jajanga
FAMILY: Euphorbiaceae.
MODE OF ADMINSTRATION**:** Leaf (young/old) ground to paste and taken orally along with sugar candy three or four times in diarrhea.

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24. ***Musa paradisiaca* L.**
ORIYA NAME: Kadali
FAMILY: Musaceae.
MODE OF ADMINSTRATION: Sap from Leaf and seeds administered orally to cure diarrhea.

25. ***Feronia Limonia* (L.) Sw.**
ORIYA NAME: Kaitha
FAMILY: Rutaceae
MODE OF ADMINSTRATION: Unripe fruit paste taken orally twice a day for three days to check diarrhea.

26. ***Amaranthus spinosus* L.**
ORIYA NAME: Kantamarisha

FAMILY: Amaranthaceae.
MODE OF ADMINSTRATION: Aqueous decoction from roots taken two or three times a day to check chronic diarrhea.

27. ***Senna occidentalis (Syn. Cassia occidentalis* L.*)***
ORIYA NAME: Kasendri
FAMILY: Caesalpiniaceae
MODE OF ADMINSTRATION: Tender leaves boiled with butter milk, made to paste, and mixed with powders of cumin seeds and asafoetida. Pills made from the mixture taken twice a day cumin seeds and asafoetida. Pills made from the mixture taken twice a day to cure diarrhea.

28. ***Diospyrus melanoxylon* Roxb.**
ORIYA NAME: Kendu
FAMILY: Ebenaceae.
MODE OF ADMINSTRATION: Tender Leaf juice taken orally to cure diarrhoea.

29. ***Derris trifoliata* Lour**
ORIYA NAME: Ketia
FAMILY: Fabaceae
MODE OF ADMINSTRATION: Raw Leaf juice taken orally two to three times a day to cure chronic dysentery.

30. ***Phoenix asperulatus* Hutch**
ORIYA NAME: Khajuri
FAMILY: Arecaceae.
MODE OF ADMINSTRATION: Fresh sap (Taddy) extract from the plant taken before the sun rise in diarrhea.

31. ***Strychnos nux-vomica* L.**
ORIYA NAME: Kochila
FAMILY: Loganiaceae.
MODE OF ADMINSTRATION: Bark Macerated with lemon juice, made to pills and taken orally in acute diarrhoea.

32. ***Pavonia odorata* Willd.**
ORIYA NAME: Kurumuli
FAMILY: Malvaceae
MODE OF ADMINSTRATION: Two tea spoonful of leaf juice along with black pepper *(Piper nigrum* L.) administered orally twice a day in empty stomach for dysentery of babies

33. ***Mimosa pudica* L.**
ORIYA NAME: Lajakuli
FAMILY: Mimosaceae
MODE OF ADMINSTRATION: Roots pounded with water and the liquid paste taken twice a day in diarrhea.

34. ***Citrus meidca* L.**
ORIYA NAME: **L**embu
FAMILY: Rutaceae.
MODE OF ADMINSTRATION: Unripe fruit paste taken orally with a little sugar or sugar candy once a day for three days in diarrhoea.

35. **L*awsonia enermis* L.**
ORIYA NAME: Manjuati
FAMILY: Lythraceae.
MODE OF ADMINSTRATION: Roots along with neem leaves, and ginger, made to paste, and taken with boil with water to check diarrhea in babies.

36. ***Murraya koenigii* (L.) Sprand**.
ORIYA NAME: Mersinga **:**
FAMILY: Rutaceae.
MODE OF ADMINSTRATION: Decoction of the leaf taken orally to cure dysentery.

37. ***Mesua nagassarium* (Burm.*f*.) Kost.**
ORIYA NAME: **Nageswar/Nagakedar**.
FAMILY: Clusiaceae.
MODE OF ADMINSTRATION: Aqueous extract from the bark taken orally to cure diarrhea.

38. ***Azadiraclita indica* A. Juss.**
ORIYA NAME: Nimba
FAMILY: Meliaceae
MODE OF ADMINSTRATION: . 2-3 grams of the resin secreted from the stem bark dissolved in rice, water and administered twice a day in to children to check diarrhea.

39. ***Erythrina varigata var. orientalis* (L) Merr.**
ORIYA NAME: Paladhua
FAMILY: Fabaceae.
MODE OF ADMINSTRATION: Decoction from bark administered orally to cure blood dysentery

40. ***Butea monosperma*** **(Lamk.) Taub.**
ORIYA NAME: Palasa
FAMILY: Fabaceae.
MODE OF ADMINSTRATION: Raw leaf extract used internally twice a day to cure diarrhea.

.41. ***Aerva Lanata*** **(L.) Juss.**
ORIYA NAME: Paunsia
FAMILY: Amaranthaceae
MODE OF ADMINSTRATION: Roots boiled along with rhizomes of Mutha *(Cyperus rotundus L.*) and Fennel *(Foeniculum vulgare Gaertn.).* The decoction resulted is taken 2-3 times a day to cure diarrhea in children.
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42. ***Oroxylum indicum*** **(L.) Vent.**
ORIYA NAME: Phanaphania
FAMILY: Bignoniaceae
MODE OF ADMINSTRATION: Powdered root bark of lotus is fermented in an air tight vessel for about one month, sieved, filtered and the liquid filtrate is taken orally along with sugar candy or honey thrice a day for 3 days in blood dysentery.

.43. ***Allium cepa*** **L.**
ORIYA NAME: Piaja
FAMILY: L..iliaceae.
MODE OF ADMINSTRATION: The bulb is cut vertically, and a little amount of lime (Calcium hydroxide) is inserted through the slit and allowed to remain for 10 minutes. Then it is directly chewed to check blood dysentery.

44. ***Basella rubra*** **L.**
ORIYA NAME: Poi
FAMILY: Basellaceae.
MODE OF ADMINSTRATION : Leaf juice along with juice from pomegranate seeds taken twice a day to cure diarrhea.

45. ***Manikara zapata*** **(L.) Royen**
ORIYA NAME: Sapata
FAMILY: Sapotaceae
MODE OF ADMINSTRATION: Unripe fruits to be grounded, paste taken orally thrice a day to check diarrhea.

46. ***Asparagus racemosus*** **Willd.**
ORIYA NAME: Satamuli/Satabari

FAMILY: Liliaceae.
MODE OF ADMINSTRATION: Boiled milk extract of fresh roots (tubers) taken orally to cure blood dysentery.

47. ***Hemidesmus indicus*** **(L.) R. Sr**
ORIYA NAME: Sugandhi
FAMILY: Asclepiadaceae
MODE OF ADMINSTRATION: Root tubers grounded with fennel and the paste taken with gur twice a day for three days to check diarrhea and dysentery.

48. ***Tamarindus indica*** **L.**
ORIYA NAME: Tentuli
FAMILY: Caesalpiniaceae.
MODE OF ADMINSTRATION: Tender leaves macerated to paste and taken directly to check dysentery. Also powder made from dried flowers taken orally with sugar in blood dysentery.

49. ***Tridax procumbens*** **L.**
ORIYA NAME: Vissalyakarani
FAMILY: Asteraceae
MODE OF ADMINSTRATION: Whole plant made in to paste and taken orally in diarrhea.

The investigations revealed the medicinal plants used in diarrohea consist of 49 species of 46 genera belonging to 30 families. Euphorbiaceae is the dominant family (4 spp.), followed by Moraceae (3) Rutaceae (3) Solanaceae(2) Fabaceae (2) Verbenaceae (2) Annacardiaceae(2) and others having one each. 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 deep 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 the study area, 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 that can fulfill the purposes of conservation and which are eco-friendly to nature.

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