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Potential Medicinal Plants Used by the Tribal of Deogarh District, Orissa, India

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ABSTRACT Plants have been used as a source of medicine since ancient times. These medicines are safe and environmentally friendly. According to WHO about 80% of the world's population depends on traditional medicine for their primary health care. Currently the Government of India, realising the value of the country's vast range of medicinal plants, has embarked on a mission of documenting the traditional knowledge. Out of thirty districts of Orissa, Deogarh lying between 21° 31' 53" N latitude and 84° 43' 2"E longitude with a total area of 6702 sq.kms is located in the northern part of the state, suffers from non-utilization of its forest resources though it has vast potentialities. While exploring the various forest pockets of Deogarh district, the authors interacted with different tribes like Gonda, Munda, Kondhs, Kharias and Bhumiji etc. and collected the unexplored bio-resources. The present paper highlights a rich and unique profile of un-utilized resources of the area surveyed, with 40 families belongs to 49 genera and 50 species with correct botanical identification, vernacular names, locality, parts used, doses and mode of administration in respect to different diseases.

INTRODUCTION

Throughout the world, plants have been in continuous use in one way or the other for the treatment of various ailments. In India, the sacred Vedas, which date 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. The Rig Veda, dating between 3500 B.C. to 1800 B.C., seems to be the earliest record available on medicinal plants. Nearly 80% of the world population depends upon traditional system of health care (Anonymous 1998). Allopathic drugs have brought a revolution throughout the world but the plant based medicines have its own unique status. Surveys had revealed that 50% of the top prescription drugs in the USA are based on natural products and the raw materials are locked up in the tropical world, interiors of Africa, Asia and Latin America. The local uses of plants as a cure are common particularly in those areas, which have little or no access to modern health services, such as the innumerable tribal villages and hamlets in India indicates that the dependency of traditional societies on the wild collections for subsistence needs (Campbell et al. 1997).The indigenous traditional knowledge of medicinal plants of various ethnic communities, where it has been transmitted orally for centuries is fast disappearing from the face of the earth due to the advent of modern technology and transformation of traditional culture. There is an urgent need to document the ethno biological information presently existing among the diverse communities before the traditional knowledge are completely lost (Rao 1996). Much of this wealth of knowledge is totally becoming lost as traditional culture gradually disappears (Hamilton 1995). Thus, there is now urgency for ethno-botanical research amongst aboriginal people (Maheshwari 1983).

In recent years, traditional ethno-botanical studies have received much attention due to their wide local acceptability and clues for new or less-known medicinal plants (Tripathi 2000). The collection of information about natural flora, classification, management and use of plants by the people holds importance among the ethno-

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botanists. The local people and researchers face the challenging task of not only documenting knowledge on plants, but also applying the results of their studies for biodiversity conservation and community development, with a deep concern and reverence for the vast diversity of flora that our country enjoys, and with sense of realization about the invaluable therapeutic properties of this phytodiversity. This work concentrates on potential ethno medicinal value of plants commonly used by the tribals of the Deogarh district.

METHODOLOGY

Deogarh district is located between 21° 31' 53" N Latitude and 84° 43' 2" E Longitude with a total area of 6702 sq. kms. towards the Northern region of the state Orissa (Fig. 1). The study involves intensive explorations and critical study of specimens for 3 years. Regular field trips were made in such a way so as to cover all the areas of the district as regular intervals in different seasons from June 2004 to August 2006. Plant specimens have been collected in sets of four both in flowering and fruiting stages. Field observations on phenology, habit, habitat, local names, local uses have been recorded in the field at the time of collection and the supportive plant specimens of folklore claims were collected, processed, critically studied, identified consulting the flora of Haines (1921-25), Mooney (1950), Gamble (1915-36), Saxena and Brahamam (1994-96) and preserved in the herbarium of IMMT. An

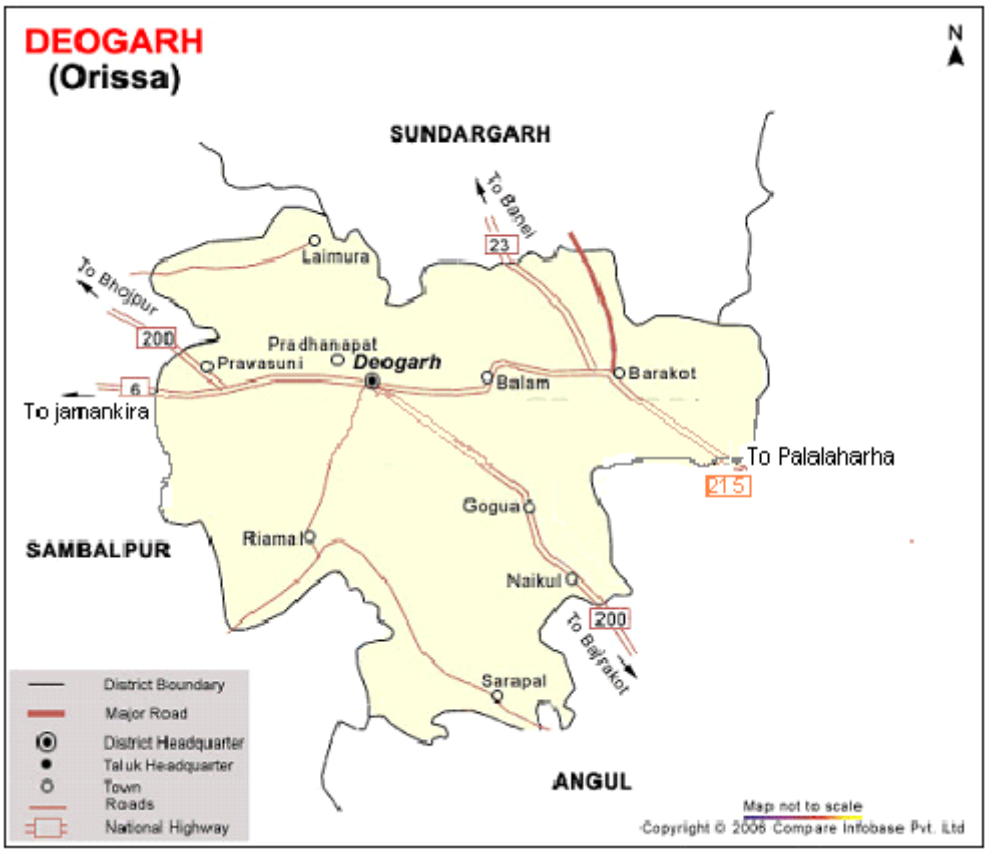

Fig. 1. Map of Deogarh district.

effort was made to crosscheck the folklore claims. This study involves checking and rechecking of a particular folklore claim by the different dwellers of the same tribe in different forest pockets. This has cleared many doubts regarding the use and identity of plant specimens.

The details have been provided in table 1 with correct botanical identification followed by family, vernacular names, locality, parts used, doses and mode of administration in respect to different diseases.

RESULTS

The data on medicinal plants, which was collected from inhabitants in and around different forest pockets of Deogarh district, were pooled and analysed. The investigation revealed the medicinal plants of 50 species and 49 genera belonging to 40 families, which are commonly used for various ailments of various tribes (G-Gonda,Mu-Munda,K-Kondha, etc.) of the area surveyed. The enumeration and utilization of these plants were mentioned in table 1. Table 2 shows less known medicinal plants of Deogarh District.

DISCUSSION

The study provides information on 33 human diseases against which the plants are used by the tribes of Deogarh district. The frequency of occurrence of different diseases by the tribals of Deogarh district has been clearly mentioned in the histograph (Fig. 2).It has analysed that spermatorrhoea and eczema are the frequently occurring diseases and asthma, hydrocoel is not to that area.The plants like *Cuscuta reflexa* against hydrocoel, *Uraria picta* against sterility, *Woodfordia fruticosa* for irregular menstruation, *Gloriosa superba* against piles are ethno medicinally very important to the tribals.The people of this region derive immense benefit by using herbal medicines for their primary health care. In Orissa, particularly in Deogarh district the medicinal plants available in nature and the traditional medicinal knowledge available with the tribes are still not explored well which needs a thorough investigation.

A number of organizations within India are concerned with maintaining India's Traditional Medicine Systems. In addition, there is a wide spread development network, and established

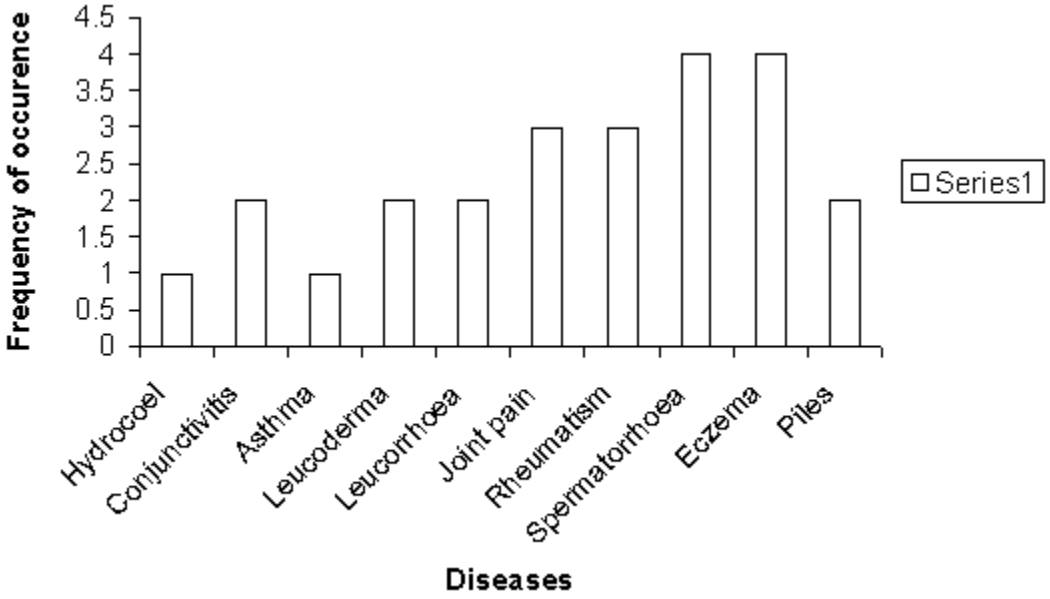

Fig. 2. Frequency of occurrence of diseases

Table 1: Use of different plant species by the tribals of Deogarh District.

S. No.	*PS*	*Fam.*	*LOC. and FN*	*VN*	*PU*	*EC*
1	*Abrus precatorius* L	Fabaceae	Kudapara, 10090	Kaincho,Runja	White seeds	9g seeds soaked in raw cow milk for over night and the seeds is given to women in the morning in empty stomach once a day for 15 days after child birth to cure stomach disorder
2	*Ageratum conyzoides* L.	Asteraceae	Kudapara,10064	Pokusunga	Leaves	Half boiled 3g leaf paste is applied externally on skin preferably before going to bed for 15 days against leucoderma.
3	*Alangium salvifolium* (L.f.) Wang.	Alangiaceae	Kudapara,10194	Ankula	Leaves	Fresh leaf juice 2 ml mixed with common salt 1g is applied drop by drop twice for a week against conjunctivitis.
4	*Argemone mexicana* L.	Papaveraceae	Pravasuni	Agora	Seed	2g dried seed powdered mixed with 2g leaf paste of *Andrographis paniculata* and applied externally on skin against eczema.
5	*Asparagus racemosus* Willd.	Liliaceae	Kudapara,10132	Iswarjata	Root	3g root paste mixed with one spoonful sugar is administered in empty stomach against spermatorrhoea once a day for 15 days.
6	*Atylosia scarabaeoides* (L.) Benth.	Fabaceae	Kudapara,10002	Kulthia	Seed	5g of immature seeds are soaked with 250 ml of hot water. The decoction is taken after launch and dinner continuously for 7 days against indigestion.
7	*Bauhinia variegata L.*	Caesalpiniaceae	Dantaribahal,10140	Kachu	Root bark	5 ml of fresh root bark decoction is taken twice a day continuously for one month in empty stomach for reducing cholesterol of the body. It is adviced not to take meat and fish in diet
8	*Boerhavia diffusa* L	Nyctaginaceae	Kudapara,10065	Puruni saga	Leaves	Fresh leaf decoction 5 ml is given once a day in the early morning for ten days against kidney problem.
9	*Borreria articularis* (L.f.) Wlliams.	Rubiaceae	Kalamati,10147	Solaganthi	Whole plant/ Root	Whole plants are boiled and the vapours are inhaled for 30 minutes to get relief from headache
10	*Calotropis procera* (Ait.)R.Br.	Asclepiadaceae	Dantaribahal,10024	Arakha	Root/Leaves	The 6g root is used directly twice a day in snake bite on the wound for sucking poison and leaf latex is used in any other wound.
11	*Careya arborea* Roxb.	Baringtoniceae	Pravasuni, 10142	Kumbhi	Root	2g of fresh root paste is taken in the morning in empty stomach for five days against joint pain.
12	*Catharanthus roseus* L.G.Don	Apocynaceae	Kalamati,10069	Sweat chandi	Root	3g fresh root paste is applied twice a day continuously seven days against eczema.
13	*Combretum decandrum* Roxb.	Combretaceae	Kalamati,10189	Atundi	Leaves/Stem	3g leaf and 2g stem is made into paste and mixed with mustard oil applied against acne.
14	*Curcuma amada* Roxb	Zingiberaceae	Pravasuni, 10073	Amad	Rhizome	Fresh rhizome paste 5g mixed with 1g dried seed paste of 7 long peppers (*Piper longum*) is used thrice for seven days after food for the treatment of joint pain.
15	*Cuscuta reflexa* Roxb.	Cuscutaceae	Kalamati,10083	Nirmuli	Whole plant	Whole plant paste 2gm grinded with 1g paste of long pepper (*Piper longum*) and applied on the swelling portion of scortum before sleep for 30 minutes every day for the treatment of Hydrocele.

Table 1: Contd....

S. No.	*PS*	*Fam.*	*LOC. and FN*	*VN*	*PU*	*EC*
16	*Desmodium gangeticum* (L) DC.Prod.	Fabaceae	Kalamati,10074	Saloporni	Leaves	5 ml fresh leaf decoction is taken in empty stomach once for seven days against typhoid and other fever.
17	*Dillenia aurea* Sm.	Dilleniaceae	Pravasuni, 9987	Rai	Root bark	10 ml extract of root bark is taken twice a day for fifteen days in empty stomach for stomach disorder
18	*Dillenia pentagyna* Roxb	Dilleniaceae	Pravasuni, 9988	Sahar	Fruit	Fruit decoction 5 ml mixed with 3g rhizome paste of Ramkedar (*Zingiber montanum*) is taken thrice a day for three days before food against blood dysentery.
19	*Dioscorea bulbifera* L.	Dioscoreaceae	Kalamati,10162	Khamba-alu	Tuber	Tuber paste 2g mixed with 4g young leaf paste of (*Costus specious)* is administered for fifteen days against rheumatism.
20	*Diospyros melanoxylon* Roxb.	Ebenaceae	Pradhanpat,9985	Kendu	Leaves	Young leaves decoction 3 ml mixed with rice bran oil 4 ml is administered in empty stomach for ten days against conjunctivitis.
21	*Elephantopus scaber* L.	Asteraceae	Kalamati,10045	Mayurchulia	Root	Root paste 5g is taken twice a day after food for seven days against spermatorrhoea.
22	*Evolvulus nummularis* L.	Convolvulaceae	Deogarh,10006	Bichhamalia	Leaves	Root paste 5g is taken twice a day after food for seven days against spermatorrhoea.
23	*Ficus religiosa* L.	Moraceae	Koradakot, 10157	Aswatta	Stem bark	Stem bark paste 3g with 2 ml of lime water is taken twice in empty stomach for fifteen days against rheumatism.
24	*Flacourtia indica* (Burm.f.) Merr.	Flacourtiaceae	Koradakot, 10123	Baicha	Stem bark	6g stem bark paste is applied over the skin against leucoderma
25	*Gloriosa superba* L.	Liliaceae	Ramadevi,10054	Nanga-nangalia	Tuber	2g tuber paste mixed with equal amount of seeds paste of black pepper (*Piper nigrum*) is taken twice for twenty days against piles.
26	*Helicteres isora* L.	Sterculiaceae	Koradakot, 10059	Muri-muri	Leaves	Leaf paste 5g mixed with 2g root paste of Atundi *(Combretum decandrum)* is used by rubbing the infected portion of skin against scabies.
27	*Hemidesmus indicus* (L) R. Br.	Periplocaceae	Ramadevi,10092	Anantamul	Root	Root paste 10g is administered twice in empty stomach continuously for seven days against eczema.
28	*Hibiscus rosa-sinensis* L.	Malvaceae	Ramadevi,9992	Mandaro	Stem bark	Stem bark paste 5g is given to woman continuously five days in empty stomach as a contraceptive.
29	*Justicia adhatoda* L.	Acanthaceae	Ramadevi,9995	Basango	Root	2g fresh root paste mixed with 1g root paste of *Abrus precatorius* and 2g leaf paste of *Achyranthes aspera* and only 2g of the grinded pasty mass taken twice a day after meal for twenty days against piles.
30	*Lantana camara* (L.) var. *aculeate* (L.) Mold.	Verbenaceae	Koradakot, 9978	Putus	Root bark	Root bark decoction 5 ml is taken in empty stomach twice a day continuously for four days to cure blood dysentery

Table 1: Contd....

S. No.	PS	Fam.	LOC. and FN	VN	PU	EC
31	*Lygodium flexuosum*(L.)Sw.	Lygodiaceae	Kalamati,10070	Mahajala	Whole plant	The 10g whole plant is made into paste and is taken twice a day for indigestion.
32	*Mimosa himalayana* Gamble.	Mimosaceae	Koradakot, 10111	Kirkichi	Root	Decoction of root 3ml mixed with 2g of leaf paste of *Azadirachta indica* and prescribed twice a day after food as a medicine against viral infection.
33	*Momordica charantia* L.	Cucurbitaceae	Koradakot, 9997	Kalara	Root	Root juice 5 ml mixed with 2g of root paste of *Hemidesmus indicus* is taken twice a day after food for fifteen days against sexual disorders.
34	*Murraya paniculata* (L.) Jack.	Rutaceae	Pradhanpat, 10036	Kamini	Root	1g root paste mixed with 2 ml lime water and 2 ml of honey is given to children twice a day for three days after food against viral fever.
35	*Nyctanthes arbor-tristis* L.	Oleaceae	Pradhanpat, 10094	Gangaseoli	Stem bark	3 ml decoction of stem bark with 1g of common salt and 1 ml of honey is taken twice a day in empty stomach against cold, cough and fever.
36	*Plumbago zeylanica* L.	Plumbaginaceae	Dantaribahal, 10134	Chintamula	Root	10g of fresh root is boiled in 5 ml of mustard oil and slowly messaged over the body in bed time only for half an hour for fifteen days against leucorrhoea.
37	*Pterospermum acerifolium* (L.) Willd Sp.	Sterculiaceae	Pradhanpat, 10075	Kanaka champa	Root	5g fresh root along with 1g fresh root of *Asparagus racemosus* and 5g of sugar boiled in 250 ml of water. Only 4 ml of the decoction orally administered for 10 days against spermatorrohea.
38	*Schleichera oleosa* (Lour.) Oken	Sapindaceae	Pradhanpat, 10187	Kusum	Root	About 2g of fresh root paste along with 5 ml of cow urine is taken orally in empty stomach once in the morning for fifteen days to have relief from leucorrhoea.
39	*Scoparia dulcis* L.	Scrophulariaceae	Dantaribahal, 9986	Chirarita	Leaves	Decoction of leaf 4 ml is taken twice continuously for five days against sore throat.
40	*Sida acuta* Burm. f.	Malvaceae	Dantaribahal, 10009	Bariari	Leaves	Decoction of leaf (3ml) mixed with paste of (2gm) *Piper nigrum* and lime water (1ml) is taken twice a day after food for a week against enlarged scrotum.
41	*Smilax macrophylla* Roxb.	Smilacaceae	Dantaribahal, 10128	Muturi	Root	6ml decoction of root is used for increase sexual interaction between male and female.
42	*Soymida febrifuga* (Roxb.)A.Juss.	Meliaceae	Pradhanpat, 10052	Rohini	Root	About 20g of fresh root is boiled in 1 liter of water till to be one fourth of its volume. 3 ml of this decoction along with 2 ml of honey is taken orally in empty stomach twice a day for 15 days against spermatorrhea.
43	*Streblus asper* Lour.	Moraceae	Kalamati,10064	Sahada	Stem bark	Stem bark paste about 5g is administered once a day continuously for three month against piles.
44	*Strychnos nux-vomicaL.*Sp.	Strychnaceae	Deogarh,10056	Kuchila	Leaves	Pasty mass of leaf 3g grinded with 2g stem bark of *schleihcera oleosa* and prescribed twice a day in empty stomach for ten days continuously against eczema.

Table 1: Contd....

S. No.	*PS*	*Fam.*	*LOC. and FN*	*VN*	*PU*	*EC*
45	*Tephrosia purpurea* (L.) Pers.	Fabaceae	Kalamati,10077	Kulathio	Seed	5g dried seed grinded with 2 ml honey and given to women twice a day continuously for one month against post natal complications.
46	*Tinospora cordifolia* (Willd.) Hook.f. & Thoms.	Menispermaceae	Kalamati,10074	Gulochi	Leaves	Decoction of leaf 3 ml mixed with common salt 2g is taken in empty stomach once a day for one month to cure from acidity in stomach
47	*Tragia involucrata* L.	Euphorbiaceae	Dantaribahal, 10011	Bichhuati	Leaves	The 5g leaf is made into paste mixed with 10ml of jada oil and is taken once a day against asthma.
48	*Uraria picta* (Jacq.)Desv.ex DC.	Fabaceae	Kalamati,10049	Krushnaparni	Flower	The 3g flower is made into paste and is taken once a day in empty stomach to sterile women for one month for pregnancy.
49	*Vitex negundo* L.	Verbenaceae	Deogarh,10067	Begunia	Leaves	Equal proportion (4g each) of leaves mixed with leaves of *Andrographis paniculata* and 5g rhizome of *Curcuma longa* are made into paste and applied for one week to get relief from joint pain.
50	*Woodfordia fruticosa (*L.) Kurz, J.Asiat.	Lythraceae	Deogarh,10053	Dhatuki	Leaves	10 ml of fresh leaf juice is taken with 200ml toddy (sap) obtained from *Phoenix sylvestris* in the early morning on empty stomach and at noon for 2-3 days for irregular menstrual

(PS; Plant species; Fam.; Family; LOC.; Locality; FN; Field Numbers; VN; Vernacular Names; PU; Parts used; EC; Ethnobotanical claims)

Table 2: Less known medicinal plants of Deogarh district

S. No.	*Scientific Names*	*Disease/Condition*
1	*Abrus precatorius*	Stomach disorder
2	*Alangium salvifolium*	Conjunctivitis
3	*Argemone mexicana*	Eczema
4	*Atylosia scarabaeoides*	Indigestion
5	*Boerhavia diffusa*	Kidney problem
6	*Careya arborea*	Joint pain
7	*Combretum decandrum*	Acne
8	*Curcuma amada*	Joint pain
9	*Dillenia pentagyna*	Blood dysentry
10	*Gloriosa superba*	Piles
11	*Hemedesmus indicus*	Eczema
12	*Plumbago zeylanica*	Leucorrhoea
13	*Soymida febrifuga*	Spermatorrhoea
14	*Streblus aspera*	Piles

pharmaceutical industry and a wealth of botanical experts in the country. Until now, however, there has been little effort to document the volume and impact of national or international trade in India's medicinal plants (Ganesan and Kesavana 2003). According to the latest figures, it costs around 800 million dollars to put a new drug on the market. When companies manufacture a product based on traditional knowledge and convert it into a medicine, they "acquire" a product, which is worth a few hundred million dollars (Jain 1986). A USA based top pharmaceutical companies like MERCK, RANBAXY and SHAMAN are the classical examples. Such is the enormous potential hidden in these plants gifted by Nature (Ahmad et al. 2003). After lengthy discussions with the local doctors practicing siddha, Ayurveda and unani (Indian alternative medical systems), it was learnt that these plants listed by the authors in this investigation are very much used by them in making various formulations for a variety of ailments. From the enumeration study, it is obvious that the tribes of Deogarh district, who either work as labourers or cultivate crops such as Paddy, Mandia, Jhoar and mostly depend on forest and the forest products to sustain their livelihood. The tribals inherit rich traditional knowledge about the flora investigated and apply this knowledge for making crude phytomedicines to cure infections as simple as cold to as complicated as cancer. These crude herbal medicines are based not only on traditional knowledge but also on rituals and beliefs. It is observed with a sad note that this traditional knowledge which formed the basis for origin of not only alternative medicine but also paved way to evolution of a gamut of new and novel modern medicines, is facing slow and natural death as these communities are eventually oriented more towards modern medicine as they believe it gives a quick remedy, while it is paradoxical to see the modern world of late, focusing more on alternative medicine which has herbal base predominantly. Presently, very few elders in the tribal community practice herbal cure, while the young and current generation knows little or nothing about the traditional herbal medicines. If this trend continues, a few years from now, there will not be even a single elder member in tribal community who knows traditional knowledge on medicinal plants to welcome an ethno-botanist with "EVERYTHING GREEN IS MEDICINE".

CONCLUDING REMARKS

Information on uses of 50 species of 40 families for different diseases gathered during field trips are presented in this paper. This information was checked with available literature (Kirtikar and Basu 1980; Pal 1980; Chopra et al. 1982; Jain 1995). Most of the ethno-medicinal information provided in this study is new, as they have not been reported earlier. Although these herbal remedies and their efficacy is claimed to be high; detail clinical study is needed for better utilization of ethno-bio-resources.

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REFERENCES

Ahmad M, Khan MA, Qureshi RA 2003. Ethno botanical study of some cultivated plants of Chhuch region (District of Attock). *J Hamdard Medicus*, 4(3): 15-19.

Anonymous 1998. *Medicinal Plants, Their Bioactivity, Screening and Evaluation*. New Delhi: Center for Science and Technology of the Non-aligned and other Developing Countries.

Campbell BM, Luckert M, Scoones I 1997. Local-level valuation of savanna resources: A case study from Zimbabwe. *Economic Botany*, 51(1): 59-77.

Chopra RN, Chopra IC, Handa KL, Kapur LD 1982. *Indigenous Drugs of India*: 2nd Edition (Reprinted), New Delhi: Academic Publishers.

Gamble JS, Fischer CEC 1915-36. *Flora of Madras Presidency.* Dehradun: Bishensingh & Mahendrapal Singh.

Ganesan S, Kesavan L 2003. Ethno medicinal plants used by the ethnic group of Valaiyans of Vellimalai hills (Reserved forest), Tamil Nadu, India. *J Econ Taxon Bot*, 27: 754-760.

Haines HH 1921-25.*The Botany of Bihar and Orissa 6 parts.* Dehradun: Bishensingh & Mahendrapal Singh.

Hamilton A 1995. The people and plants initiative: In: GJ Martin (Ed.): *Ethnobotany a Methods Manual*. London: WWF International Chapman & Hall, pp. 10-11.

Jain SK 1986. Ethno-botany. Its scopes and various sub-disciplines. *Proceeding of the Training Course and workshop on Ethno-botany*, Lucknow.

Jain SK 1995. *A Manual of Ethno-botany*: Jodhpur: Scientific Publishers.

Kirtikar KR, Basu BD 1980. *Indian Medicinal Plants*. Dehradun: Bishensingh & Mahendrapal Singh.

Maheshwari JK 1983. Development in ethnobotany Editorial. *J Econ Taxon Bot*, 4(1): 1-4.

Mooney HF 1950. *Supplement to the Botany of Bihar and Orissa.* Ranchi.

Mukherjee TK 2004. *Ethno Medicinal Plants*. Jaipur: Pointer Publishers, pp. 25-30.

Pal DC 1980. Observations of folklore about plants used in veterinary medicine in Bengal Orissa and Bihar. *Bull Bot Surv India*, 22(1-4): 96-99.

Rao R Raghavendra 1996. Traditional knowledge and sustainable development, Key role of Ethno-biologist. *J Ethnobotany*, 8: 14-24.

Saxena HO, Brahmam M 1994-1996. *Flora of Orissa Vol. I-IV*. Bhubaneswar: Orissa Forest Devlopment Corporation Ltd.

Tripathi YC 2000. Ethno medicinal treasure of tribal Rajasthan. *J Non-Timber for Products*, 7(1- 2): 77-84.