Available online at www.pelagiaresearchlibrary.com

Pelagia Research Library

Asian Journal of Plant Science and Research, 2015, 5(2): 27-33

ISSN : 2249-7412
CODEN (USA): AJPSKY

Traditional uses of medicinal plants by native people in Nawarangpur district, Odisha, India

N. K. Dhal, S. S. Panda* and S. D. Muduli

Environment and Sustainability Department, CSIR-Institute of Minerals and Materials Technology, Bhubaneswar, Orissa, India

---

ABSTRACT

Medicinal plants still play a vital role in the primary healthcare of this local communityThe present study deals with comprehensive ethnobotanical survey of the traditional uses of plants in Nawarangpur district, Odisha,India.Data was collected through field assessments from traditional healers and locals by means of personal interviews and semi-structured questionnaires. Voucher specimens were collected following standard methods, identified with the help of pertinent floras and taxonomic experts and deposited in the Herbarium, RRL-B, India for future references.A total of 51 plants belonging to 35 families were recorded out of which major life forms were in the order of herbs, trees, shrubs and climbers. The leaf parts were widely used followed by root, bark, whole plant, seed, fruit, rhizome, petiole and latex. Traditional medicines also have the potential to form the basis of pharmaceutical drugs for the treatment of a range of diseases. Further, the information requires validation for further clinical usage.

Keywords Ethno botany, Medicinal plant, Traditional medicine, Nawarangpur district

---

INTRODUCTION

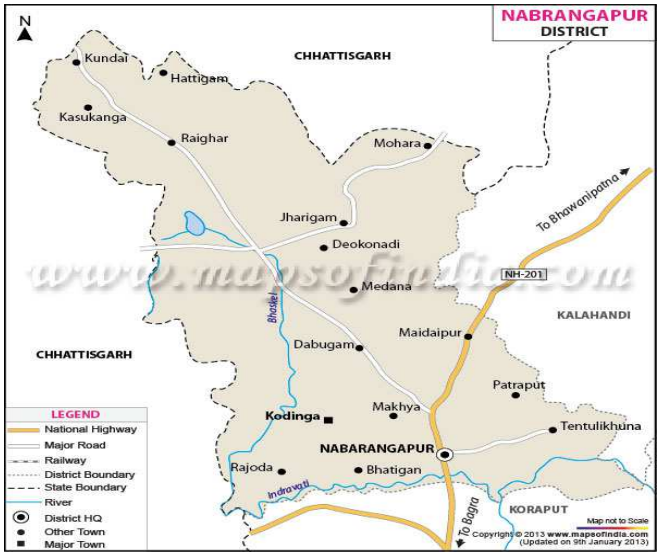
The plant kingdom represents a source of drugs and foods. Therefore, with the tendency in modern medicine to assimilate and re-assimilate natural remedies in common practice, under various forms, the potential of regional flora becomes important[1]. India is proud to be rich in biodiversity possess about 8% of the estimated biodiversity in the world with around 12600 species. It is one of the 12 mega biodiversity centers with 2 hot spots of biodiversity in the Western Ghats and North-eastern region. It's also rich in ethnic diversity, there are about 67.37 million tribal people belonging to 537 tribal groups living in different geographical locations with various subsistence patterns [2-3]. These tribal groups living in diverse rich areas possess a wealth of knowledge and skills on the utilization and conservation of food and medicinal plants[4-5]. According to the World Health Organization (WHO) almost 65% of the world's population has incorporated the value of plants as a methodology of medicinal agents into their primary modality of health care[6-7]. It is often noted that 25% of all drugs prescribed today come from plants [8]. This estimate suggests that plant-derived drugs make up a significant segment of natural product– based pharmaceuticals.

Of the 30 districts of Orissa, Nawarangpur lying on the western part of Orissa bordering Chhattisgarh suffer from non-utilization of its forest resources though it has vast potentialities.Nawarangpur district harbors a rich diversity of ethnic botanical species, which generate considerable benefits from social and economic perspectives. Until now, people are preparing medicines from their available species of plants, which were used to treat common diseases. However, due to population pressure, accelerated urbanization, recurring drought, and deforestation, most of the medicinal plants are either destroyed or on the verge of extinction [9]. The aim of this study was, therefore, to identify and document the species of the plants associated with medicinal parts, methods of preparation of medicine and major uses in Nawarangpur district, Odisha, India.

MATERIALS AND METHODS

Description of Study Area

The ethno botanical study was conducted in the Nawarangpur district of the Odisha state of India during the year 2009-2012. It is lying between 19^0 $10^/$ $42^{//}$ and 20^0 $6^/$ $12^{//}$ N latitudes and between 81^0 $51^/$ $30^{//}$ and 82^0 $52^/$ $36^{//}$ E longitudes. With an area of 5290.1 sq. km., Nawarangpur is a landlockeddistrict, surrounded on the west and north by Bastar and Raipur districts of Chhathisgarh state, and on the east and south by the Kalahandi and Koraput districts of Orissa. The whole district is more or less an elevated plateau of Eastern Ghats with occasional valleys and peaks ranging from 2,000 ft to 3,000 ft. (Figure 1). The soil of the district is of three different types; red, black cotton and lateritic soils. The climate of Nawarangpur is characterized by an equable temperature all through the year. May is the hottest month with mean daily maximum temperature of 39.62^0C and the mean daily minimum of 11.7^0C. The minimum temperature goes as low as 9.7^0 C during the middle of December and the maximum goes up 40.2^0 C during the middle of May.The average annual rainfall is 1423 mm.



Source: www.mapofindia.com

Figure 1: Location map of the study area

Fieldworks and collection of data

The study involved intensive explorations and critical study of specimens for the last four years. The field trips were organized in such a way so as to cover all the areas of the district at regular intervals in different seasons between 2009 to 2012. As a result, it became possible to record the seasonal variations in the vegetation, including distributional patterns and collect most of the plants in different developmental stages of their life cycle. Plant specimens were collected in sets of four both in flowering and fruiting stages, taking due care to collect the healthy specimens. Field observations on phenology, habit, habitat, local names, local uses, frequency of occurrence, etc. were recorded in the field notebooks at the time of collection and the collected specimens were tagged with field book numbers.

Processing of voucher specimens for herbarium preparation and identification

The voucher specimens were brought to the laboratory and processed for herbarium specimen preparation. Care was taken to identify the specimens in the field itself while the specimens were fresh. Their identity was ascertained in the Herbarium with the help local flora, monographs, revisions and other taxonomic literature [10]. For confirmation, the Central National Herbarium (CNH), Howrah and Forest Research Institute Dehradun were consulted. Voucher specimens are preserved in the Herbarium of the Regional Research Laboratory, Bhubaneswar, Odisha.

RESULTS AND DISCUSSION

The results of the floristic survey are presented in table 1. A total of 51 plant species belonging to 35 families are reported. For each species the following Ethno botanical information was provided: taxon name, family, vernacular name, plant parts used, locality, flowering season, fruiting season, voucher number, their use in the treatment of diseases and growth form. In this study, members of the family Euphorbiaceae and Acanthaceae were dominant (Figure 2). Comparison of the plant parts used as a medicinal source indicates that the leaf predominates followed by

root, bark, whole plant, seed, fruit, rhizome, petiole and latex as shown in figure3. The common diseases treated using medicinal plants are stomach ache, joint pain, scabies, lactation, rheumatism, infections, dysentery, diarrhea, bleeding of the nose, skin disease, migraine, snake bites, boils vomiting, fever, skin problems, cold & cough, toothache, stomach ache, wounds, burns, constipation, night blindness, blood dysentery, indigestion, diabetes, asthma and jaundice. Different types of preparation made from medicinally important plants included decoction, juice, powder, paste, oil and whole plant extract.

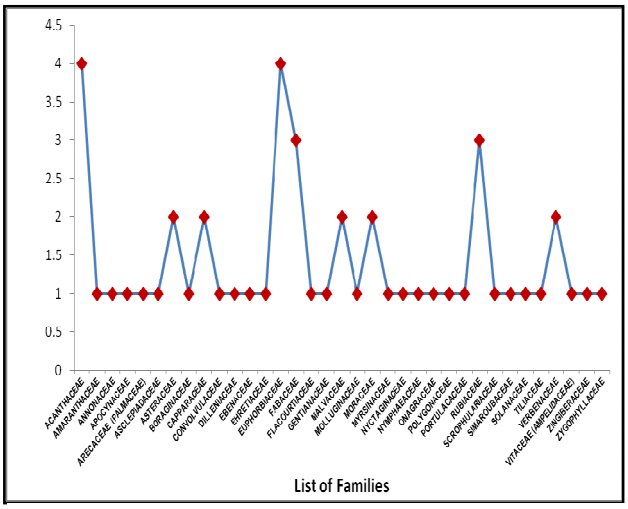


Figure 2- List of families documented

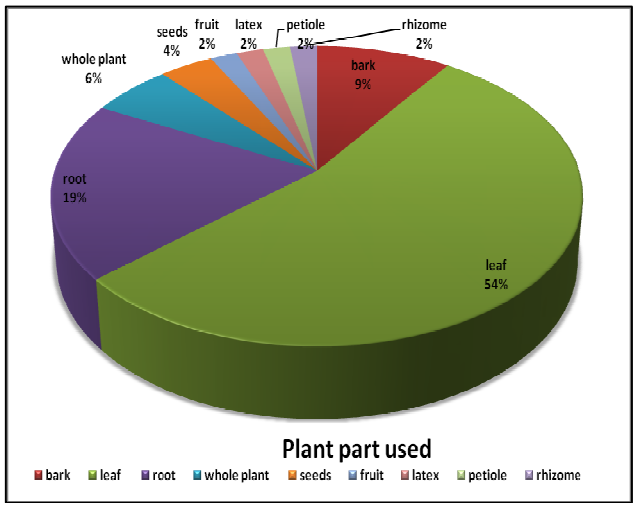


Figure 3- Plant parts used in different

CONCLUSION

Herbal medicine has long been recognized as one of the oldest forms of remedies used by humans being. Many people in developing countries still rely on traditional healing practices and medicinal plants for their daily healthcare needs, in spite of the advancement in modern medicine. However, documentation of this indigenous knowledge of healing system still remains at minimum level. It thus becomes necessary to acquire and preserve this traditional system of medicine by proper documentation and identification of specimens. Ethno botany can strengthen our links to the natural world. The findings of this study predicted that, most of the medicinal plants used by the community of study area contain medicinal substances in the root, leaf and stem part of surveyed plants.

In conclusion, Nawarangpur district is a hub of medicinal plants as revealed in this study. However, there is a need to scientifically ascertain the authenticity of the claimed useof these plants.

Table 1- List of plants collected with their medicinal uses

Sl/No	Botanical Name	Family	Vernacular name	Plant part used	Location(forest pockets)	Flowering season	Fruiting season	Voucher Number	Ethno botanical uses	Life form
1	*Dillenia Pentagyna* Roxb.	DILLENIACEAE	Rai (O); Kirmilla (B).	Bark	deciduous forests of Umerkote forest range	Mar.-Apr.	May-Aug	Dhal & Brahmam, 9776.	Bark paste is applied against back-ache.	Tree
2	*Annona squamosa*L.	ANNONACEAE	, Ata (O); Mandal (K).	Leaf	Tentulikhunti.	Mar.-Apr	May-Sept.	Dhal & Brahmam, 9010.	Leaf paste is locally used against sprains.	Tree
3	*Euryale ferox* Salisb. in Kon. & Sims	NYMPHAEACEAE		leaf	Indravati	Mar. - May	Dec-Jan	Dhal & Brahmam, 9765.	Warm leaf paste is massaged gently on joints to relieve the rheumatoid inflammation and pain.	Herb
4	*Capparis zeylanica* L.	CAPPARACEAE	Asadua (O); Gaterna (K).	leaf	Podaguda.	Feb.-Mar	Mar.-June	Dhal & Brahmam, 9787.	Leaf paste is applied locally for swellings.	Climbing shrub
5	*Cleome gynandra* L.	CAPPARACEAE	Arakasago (O); Chamari (K).	Leaf & young shoot	Pannabera,Beheda	Feb.-May	June-Sept	Dhal & Brahmam, 9570. K.S.Murthy s.n. (Acc.no-2273)	Leaf juice (warm) is used as eardrops to treat earache.	Herb
6	*Cleome viscosa* L.	CAPPARACEAE	Anasorisho, Banosorisho (O); Hurhur (K).	Root & leaf	Kapurdam.	May-June.	July-Oct	Dhal & Brahmam, 9581.	Crushed leaves are used against scorpion-biting.	herb
7	*Homalium Nepalense* Benth. J. Linn.	FLACOURTIACEAE	Dhanim ri (B)	leaf	Hattigan.	Mar.-Apr	May-July	Dhal & Brahmam, 9790.	The leaf paste is used like ointment for healing wounds	Tree
8	*Portulaca oleracea* L.	PORTULACACEAE	Bad luniya (O)	leaf	Kodinga	July-Sept.	Oct.-Jan	Dhal & Brahmam,9797	Leaf juice is taken twice a day for throat infection.	Herb
9	*Abelmoschus crinitus* Wall.	MALVACEAE	Usungid (K).	root	Raighara	Aug.-Sept	Oct.-Nov	Dhal,9304	The root paste is used externally for scorpion sting.	Shrub
10	*Thespesia lampas* (Cav.)Dalz. & Gibs	MALVACEAE	Bana kappa (O); Birkatsom (K).	leaf	Barli	Aug.-Oct.	Nov.-May.	Dhal, 9128	Leaf paste is applied externally on swolling joints	Tree
11	*Triumfetta rhomboidea* Jacq. Enum.	TILIACEAE	Chikiti (O); Chitka (P).	leaf	Indravati	July-sept	Aug.-Oct.	Dhal 9829	Leaf decoction (one teaspoonful, 3 times daily) is administered for bleeding piles.	herb
12	*Oxalis corniculata* L.	ZYGOPHYLLACEAE	Ambiliti (O); Changeri(G); Indian sorrel (E).	leaf	Bijayapadar.	Sept.-Feb	Sept.-Feb	Dhal & Brahmam, 9309.	Leaf juice mixed with honey and ginger (is administered against irregular cycle.	herb
13	*Ailanthus excelsa* Roxb.	SIMAROUBACEAE	Mahal, Maha limba (O).	leaf	Medna.	Feb.-Mar.	Apr.-July.	Dhal & Brahmam, 9440.	Leaf decoction (two teaspoonfuls, two times daily) is administered with honey to check rheumatic fever.	tree
14	*Lannea coromandelica* (Houtt.) Merr.J.	VITACEAE (AMPELIDACEAE)	Mohi (O); Nanam (K); Doka (P).	leaf	Podaguda & Singisari	Mar.-Apr.	Apr.-june.	Dhal & Brahmam, 9207, 9454.	Leaf paste is massaged against swolleing joints. Bark decoction after boiling is gargled against throat infection	tree
15	*Aeschynomene indica* L.	FABACEAE	Sola (O).	root	Raighara.	July-Oct	July-Oct	Dhal & Brahmam, 9306.	Powdered root with 2 black pepper is given thrice a day for one week to relieve from gastric pain	herb
16	*Indigofera tinctoria* L.	FABACEAE	Nili (O).	Whole plant	Nabarangpur.	Aug.-Sept	Oct.-Jan.	Dhal, 9707	The plant juice (1tea spoon full) is administered before breakfast in empty stomach for 15 days against bronchitis	herb

17	*Millettia extensa* (Benth.) Baker	FABACEAE	Guadhuni (O); Hehel (K)	root	Sanatemara.	Mar.-June	Jan.-Mar.	Dhal, 9500.	Powdered root (10gm) mixed with honey is administered once a day for 3 days against warmicides	Shrub
18	*Ichnocarpus frutescens* (L.) R.Br.	APOCYNACEAE	Suam noi, Dudhilata (O); Onol-Sing (K).	root	Sanatemara	Aug.-Dec	Oct.-Mar	Dhal, 9508.	Root decoction (5 ml) is given twice a day for one month to improve memory power Decoction of leaves is given in fever.	climber
19	*Pergularia daemia* (Forssk.) Chiov.	ASCLEPIADACEAE	Uturudi (O); Utrani (G).	leaf	Nandahandi	July-Sept.	Oct.-Mar	Dhal, 9918.	Leaf juice mixed with country liquor is given to male person more than 40 years to increase sexual ability	herb
20	*Canscora decussata* (Roxb.) Schult. & Schult.	GENTIANACEAE	Sankhapushpi (O,K,P)	Whole plant	Nabarangapur	Sept.-Oct	Nov.-Dec.	Dhal & Brahmam, 9352.	5 ml plant juice is taken twice a day for 15 days as blood purifier	herb
21	*Cordia obliqua* Willd	EHRETIACEAE	Gwhalo (O); Sinbrum (K).	leaf	Karmeli	Feb.-Apr	May-Aug	Dhal, 9937.	Leaf decoction with common salt in given twice a day for one week against cough & cold	tree
22	*Trichodesma indicum* (L.) R.Br	BORAGINACEAE	Hetamundia (O); Kubi (K).	root	Raighara.	Aug.-Feb	Aug.-Feb	Dhal, 9310.	Root paste is locally applied against sprain	herb
23	*Erycibe paniculata* Roxb	CONVOLVULACEAE	Joda koli (O); Kholi khamar (K)	bark	Minigan.	July-Aug	Sept.-Dec.	Dhal, 9948.	Bark decoction (5 ml) is given twice a day for 2 days against fever with headache.	herb
24	*Solanum virginianum* L.	SOLANACEAE	Ankranti (O); Rangaini janum (G).	root		Sept-May	Sept-May	Dhal & Brahmam, 9212.	Root paste is localy applied for scabies Seeds fried in oil are applied against tooth-ache. Seeds are expectorant and hence used in asthma	shrub
25	*Limnophila indica* (L.) Druce	SCROPHULARIACEAE	Keralata (O).	leaf		Nov.-Feb	Nov.-Feb	Dhal, 9956.	5 ml leaf juice is given thrice daily for 10 days for burning urination	herb
26	*Barleria prionitis* L.	ACANTHACEAE	Daskeranta (O); Kanta phul (G, P).	leaf	Nabarangpur.	Sept.-Feb	Sept.-Feb	Dhal & Brahmam, 9413.	Leaf juice mixed with mustard oil is applied on scabies. Leaf decoction with honey is given to treat fever, headache and body ache.	shrub
27	*Barleria strigosa* Willd.	ACANTHACEAE	Banmalli (O); Saptaphena (K, P).	leaf	Singisari.	Sept.- May.	Sept.- May	Dhal & Brahmam, 9483.	Leaf juice in coconut oil is applied externlly to cure pimples.	shrub
28	*Justicia adhatoda* L.	ACANTHACEAE	Basanga (O); Vasaka (K, P).	leaf	Jhaigan.	June-Feb	June-Feb	Dhal & Brahmam, 9329.	Leaf decoction 2 tsp mixed with honey is taken twice a day for 10 days against bronchial asthma	shrub
29	*Thunbergia fragrans* Roxb.	ACANTHACEAE		leaf	Beheda.	Oct. - Dec	Oct. - Dec	K.S.Murty s.n. (Acc.no-2153)	Leaf decoction (2 spoonfull) is given twice a daily for 2 days for diarrhoea	herb
30	*Clerodendrum inerme* (L.) Gaertn.	VERBENACEAE	Nutunga (O).	leaf	Indravati.	Sept.-Apr	Sept.-Apr	Dhal & Brahmam, 9037.	Leaf juice (warm) is prescribed as an ear drops to treat earache.	shrub
31	*Pogostemon benghalensis* (Burm.f.) Kuntze	LAMIACEAE	Gonda-dulia, Puka sunga (O); Ishwar-jata (K).	leaf	Singisari.	Dec.-Feb	Mar.-Apr	Dhal, 9402.	Leaf paste is massaged on shoulder and neck for 15 days against spondylosis	shrub
32	*Mirabilis jalapa* L.	NYCTAGINACEAE	Rangbano (O); Four O'clock plant (E).	leaf	Umerkote	Fr. Most part of the years.	Fr. Most part of the years.	Dhal & Brahmam, 9180.	Tender leaves are eaten as green vegetable against jaundice	herb
33	*Amaranthus spinosus* L.	AMARANTHACEAE	Kanta khada, Kanta sago (O); Kanta-neutia (P, K).	leaf	Chandahandi and Nabarangpur.	Sept.-Apr	Sept.-Apr	Dhal & Brahmam, 9346, 9416.	Leaf juice (10 ml) is given twice a day for 10 days against menorrhagia	herb
34	*Polygonum barbatum* L.	POLYGONACEAE		Whole plant	Bijayapadar	Dec. - May.	Dec. - May.	Dhal & Brahmam, 9068.	Plant powder (10 gm) is taken twice a day for 2 days against pneumonia	herb

35	*Antidesma acidum* Retz.	EUPHORBIACEAE	Nunnunia (O); Mattam (K); Matha-aark (G).	Fruits	Raighara	Mar.-Apr	May-Dec	Dhal, 9290.	Syrup made out of fruits is administered twice a day for 7 days against blood dysentery	shrub
36	*Bridelia retusa* (L.) Spreng	EUPHORBIACEAE	Kasi (O); Kasa (K); Khooj (B); Manga (P).	bark	Pannabera & Raighara	Aug.-Jan.	Aug.-Jan.	Dhal & Brahmam, 9366, 9319.	The bark (5 gm) is grounded with 9 black peppers is taken against urinary congestion.	tree
37	*Euphorbia hirta* L.	EUPHORBIACEAE	Chita-kuteai (O); Pusitoa (K, P).	latex	Bijayapadar	most part of the year	most part of the year	Dhal, 9059.	The latex is applied on eye to treat redness of eye	Shrub
38	*Pedilanthus tithymaloides* (L.) Poit	EUPHORBIACEAE	Khirsagar, Kharsiju (O).	leaf	Chandahandi	Jan.-May	Jan.-May	Dhal, 9354	Leaf paste heated in Caster oil is applied to reduce the swelling and associated pain due to sprains.	shrub
39	*Ficus racemosa* L.	MORACEAE	Dimiri (O); Taya (K); Dumbari (B,G).	Whole plant	Sanatemara	Oct.-Apr	Oct.-Apr	Dhal, 9513.	The milky juice of the plant(5 ml twice a day for 10 days) is given against piles	tree
40	*Ficus religiosa* L.	MORACEAE	Aswatta, Usto (O); Pippala (K); Jari (P); Pipal Tree (E).	bark	Bhejiguda	Oct.-Mar.	Oct.-Mar.	Dhal, 9503.	Powdered bark (5 gm) is taken with water once daily for 7 days against leucorrhoea.	tree
41	*Zingiber purpureum* Rosc.	ZINGIBERACEAE	Bana ada (O)	rhizome	Podaguda	Aug.-Oct	Oct- Nov.	Dhal, 10027.	Powdered rhizome is taken as an antidote to snake-bite	herb
42	*Caryota urens* L.	ARECACEAE (PALMACEAE)	Salapa (O); Ateka (K); Salpa (O).	stem	Khonda.	Apr.-Aug	Oct.-Feb.	Dhal & Brahmam, 9158.	The juice is collected by incising the stem. A glass of fresh juice is given to nursing mothers to enhance lactation	tree
43	*Ludwigia octovalvis* (Jacq.) Raven.	ONAGRACEAE	Bhuikura (O); Daliju (K)	Petiole	RaigharanUmerkote	July-Sept.	Oct.-Mar	Dhal & Brahmam,9160,9307	Petiole juice is put in eyes against eye diseases like conjunctivitis.	Herb
44	*Glinus lotoides* L.	MOLLUGINACEAE		Leaf	Kapur dam	Feb.-May	Feb.-May	Dhal, 9589.	Leaf juice (5 ml) is given twice daily for three days against stomach pain of the children	Herb
45	*Hedyotis corymbosa* (L.) Lam.	RUBIACEAE	Gharpodia (O).	Whole plant	Chikli.	June-Sept.	June-Sept.	Dhal, 9904.	Plant decoction is given 2 times a day for 15 days against dyspepsia	Herb
46	*Hedyotis herbacea* L.	RUBIACEAE	Gharpodia (O).	Whole plant	Singisari	July-Dec	July-Dec	Dhal, 9905.	Plant decoction with common salt (2:1)is given once a day for migraine	Herb
47	*Ixora pavetta* Andr.	RUBIACEAE	Telkuria (O); Pete(K)	Root	Barli.	Feb.-Mar	Feb.-Mar	Dhal & Brahmam, 9124.	Root paste mixed with the root paste of Satabari (Asparagus racemosus Willd.) is administered twice a day for 7 days against urinary infection.	shrub
48	*Eclipta prostrata* (L.) L.	ASTERACEAE	Bhringaraj(O); Kamri (K)	Leaf	Dasarathpur	July-Nov	July-Nov	Dhal, 9265	Leaf juice is applied on head for better hair growth.4-6 leaves are made into paste with stem bark of Kochila (Strynchos nuxvomica) and applied locally on boils for suppuration	herb
49	*Grangea maderaspatana* (L.)Poir.	ASTERACEAE	Agni kumari (O).	Root	Umerkote.	Jan.-Apr	Jan.-Apr	Dhal, 9173.	About 1cm long root is chewed after meal for 15 days against dyspepsia	herb
50	*Ardisia solanacea* Roxb.	MYRSINACEAE	Kadna, Kantapengu (O); Ridika(K).	Root	Tentulikhunti.	Mar.-June	. Oct.-Jan	Dhal & Brahmam, 9034.	Root bark paste mixed with dried flower powder of Kanchan and goat milk (4:3:4) is administered twice a day for 15 days against asthma	tree
51	*Diospyros melanoxylon* Roxb.	EBENACEAE	Kendu (O); Duringi (K); Terel (G).	Flower	Birijadapahada.	Apr-May	Feb.-Mar.	Dhal & Brahmam, 9600.	Flower powder (10 gm) mixed with black Pepper 3:2 is taken twice a day for 15 days against leucorrhoea tuberculosis	tree

Acknowledgement
The authors would like to thank the local people for their valuable indigenous knowledge transfer. We are also thankful to the Director, Institute of Minerals and Materials Technology, CSIR, Bhubaneswar for providing infrastructure to carry out research work successfully.

REFERENCES

[1] De Feo V, Aquino R, Menghini A, Ramundo E, & Senatore F. *J Ethnopharmacol***1992**; 36:113–125.
[2] Amuthavalluvan V.*Int Mult Res J***2011**; 1(7): 47-51.
[3] Shanmugam S, Rajendran K, Suresh K.*Asian Pac J Trop Biomed***2012**; 5: 429-434.
[4] Ranganathan R, Vijayalakshmi R,Parameswari P.*Asian J Pharm Clinical Res***2012**; 5(2).
[5] Johnsy G, Davidson S, Kaviyarasan V.*Int Pharm Pharmaceut Sci.***2012**; 4:1.
[6] FarnsworthNR, Akerele O, Bingel AS, SoejartoDD, GuoZ. Medicinal plants in therapy. *Bull WHO***1985**, 63(6): 965–981.
[7] Farnsworth NRand Morris RW. *Am. J. Pharm. Sci. Support. Public Health***1976**; 148(2): 46–52.
[8] Raskin I and Ripoll C.*Curr. Pharm. Des.***2004**; 10(27):3419- 3429.
[9] WHO. **2003**. *Traditionalmedicine* Fact sheet No 134.
[10] SaxenaHO, Brahmam M. The Flora of Orissa, Orissa Forest Development Corporation Ltd, Bhubaneswar, India. **1994–1996**; 1–4: LXIV+2918.