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Original Article

Folk uses of some medicinal plants by Kol tribes of Similipal Biosphere Reserve, Orissa, India

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Abstract

Similpal Biosphere Reserve of Mayurbhanj, a hilly district of Odisha, India, is rich in ethno medicinal plants. This paper provides information on potential ethnomedicinal value of plant crude drugs for various diseases commonly used by the Kol tribes residing in and around Similipal Biosphere Reserve of the area surveyed. It is primarily based on field surveys carried out in villages, where dwellers provided information on plant species used as medicine, parts used to prepare the remedies, and the illnesses to which the remedies were prescribed. The plant parts, viz. leaf, bark, seed, root, tuber, fruit and whole plant were used in raw or cooked forms for the treatment of piles, skin disease, fever, dysentery etc. The species used as medicinal drug comprise 19 plant species belonging to 17 families. These phytotherapeutical resources were used for the cure of 18 illnesses. Due to poor condition of modern healthcare facilities and poverty, indigenous people of the district fully or partially depend on local medicinal plants.
Key words: Similipal Biosphere Reserve, folk uses, Odisha, traditional knowledge, tribal community

Introduction

In recent years, due to the increasing dissatisfaction with modern medicines and increased consumer desire in healthy living, there has been a dramatic increase in the consumption of natural foods and the use of dietary supplements. Many plant species, possessing medicinally important compounds are disappearing at an alarming rate due to the destruction of their natural habitats, this owning to rapid agricultural development, urbanization, indiscriminate deforestation and uncontrolled collection of plant materials. Primitive people live closely associated with nature and chiefly depend on it for their survival. Traditionally Baidyas mostly belongs to tribal communities had been using it to cure their ailments. This system of using herbs and different biological active ingredients in treating various diseases had become a part of their culture till recent years. Entrance of market economy gave rise to exploitation of natural resources and thereby depleting our resources base. World wide, ten thousands of species of higher plants and several hundred lower plants are currently used by human beings for a wide variety of purposes such as food, fuel, fiber, oil, herbs, spices, industrial crops and as forage and fodder for domesticated animals (Heywood, 1992). Many Indian plants and their constituents are the chief ingredients of a number of pharmaceutical preparations used in various ailments, on account of their high antibacterial and antimicrobial activities (Kirtikar and Basu, 1991). In this context ethnobotanists can play a very useful role in returning such disappearing knowledge to local communities. In this way, local ethnobotanical knowledge can be conserved as part of living cultural-ecological systems, helping to maintain a sense of pride in local cultural knowledge and practice and reinforcing links between communities and the environment, so essential for conservation (Gary and Martin, 1995). This work concentrates on potential ethnomedicinal value of plants and herbs commonly used by the Kol tribes residing in and around Similipal Biosphere Reserve of the area surveyed. The study area concentrates in and around the deep forest pockets of tribal villages which comes under Similipal Biosphere Reserve located in Mayurbhanj districts of Orisha, India.

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Materials and Methods

Study Area

The Similipal Biosphere Reserve (Fig.1) one of the mega biodiversity zones of the country situated in the central part of the Mayurbhanj district of Odisha (20^0 17' - 22^0 34'N and $85^0$40' - $87^0$10'E) and covers an area of 5569 km^2. The Similipal Biosphere Reserve has been divided into three zones i.e. Core Zone, Buffer Zone and Transition Zone. The core zone (845Km^2) is reserved for wildlife habitat development and no exploitation activities are entertained in this area. The buffer zone (around 2,129 Km^2) is partially prohibited and is allowed for some activities like research, education and tourism. On the other hand the transition zone, which lies in the peripheral region covering 2,595 Km^2, is allowed for research, settlement of tribal people, tourism and other environment friendly activities.

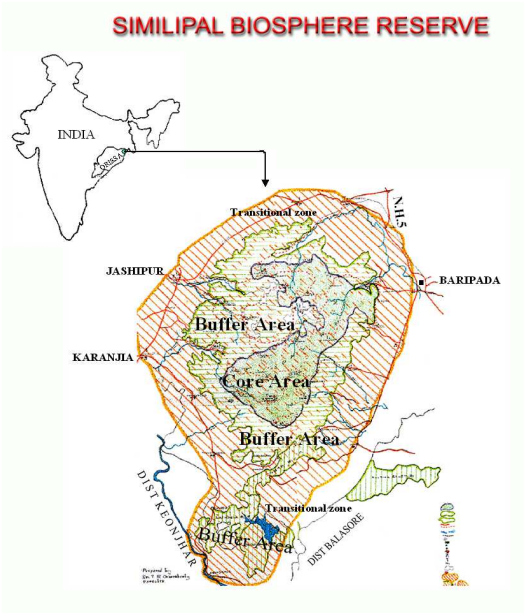

Fig.1: Map of study area

There are four villages inside the core area, sixty one villages in the buffer zone and twelve hundred villages in the transitional zone of Similipal Biosphere Reserve with a population of about 4.5lakhs. In the Mayurbhanj District tribes occupy a big chunk of the population constituting 73% of it; fifty three communities both aboriginal and migrated are found in the district Naik, (1998). Some of the tribes namely Kol, Kharia, Mankdias and Saharas are still in primitive state of living. They depend solely on their surrounding plants for more of their requirements from food to medicines Saxena *et al*., (1988).

Agriculture is not well developed and therefore most of them depend solely on forests for catering their daily and perpetual need from food to medicine. Since time immemorial the intimate association and dependence of the tribal communities on the local natural resources have enriched them with invaluable knowledge on bio-resource utilization and consequently they have developed extensive knowledge on various plants.

The climate of the Similipal is warm and humid. Three distinct seasons are felt during the year. Rainy season (mid June till October), winter (mid October to February) and summer (March to mid June). The annual rainfall is varying from 1200mm to 2000mm. The temperature ranges from 9.8° to 33.5°C. The southern and western aspects are cooler and north eastern aspects are warmer in. Periodic earth tremors, thunder storms in the rains and dust storms in late May and early June are further characteristic features of Similipal.

Ethnobotanical notes of wild plants being used by tribals were taken in trips, observations and collections during 2007-2009. Structured questionnaire survey method was employed to document the traditional ethno medicinal knowledge of local communities in Similipal Biosphere Reserve. Surveys were conducted in different villages of Similipal forest. Collections are valuable because they serve as voucher specimens, records of the plants that are known by community and function as specimens for systematic identification (Martin,1995). A voucher specimen facilitates the identification of the species encountered during the research and permits colleagues to review the results of the study (Jain and Rao, 1977; Jain, 1987). Knowledgeable persons or medicine men, Kaviraj, experienced and aged persons, local healers of the villages were consulted for recording local name; parts of plants used, methods of drug preparation and recommended doses. Personal interviews and group discussions with local inhabitants revealed some very valuable and specific information about the plants, which were further authenticated by crosschecking. In addition to crosschecking and recording folk names of plants through collecting voucher specimens, it is important to crosscheck information with different people and compare the results from different methods (Cunningham, 2001). Interviews with people out of the village,

pastures or forests were conducted on a systematic basis to know more details about species, their management and distribution. The collected plant species were identified with the help of floras (Haines 1921-25; Saxena and Brahmam,1994-96). To ascertain the uses of these medicinal plants, the earlier published scientific literature(Jain,1991; Kirtikar and Basu, 1991; Ambasta *et al*., 1992; Chopra *et al.,* 1996). The medicinal plants collected are listed here with their botanical names followed by family name, their local names in Oriya and the parts used for medicinal purpose.

Results and Discussion

Richness of the biodiversity of Similipal Biosphere Reserve in Mayurbhanj district is internationally well acknowledged. The tribals inhabiting Mayurbhanj district are mainly Santhal, Kol, Bhomija, Bathudi and Mahalis. Among them, Kol tribes have good knowledge of medicinal uses of the plant species available in the region. Unfortunately, their knowledge could not be documented and there is urgency for documentation of their knowledge on priority basis. It has also been established during the survey that several old experienced medicine men who are no more, had never disclosed their knowledge of medicinal uses to others. However, after developing intimacy with some of the experienced medicine men and other traditional healers, some information on medicinal uses have been collected and is presented in this paper.

Traditional healers use their five senses to diagnose the diseases, which are remarkable because they live in interior areas and lack the use of modern scientific equipments for treatment; however, they treat diseases using medicinal plants and animals (Santhya *et al*., 2006). Documentation of such plants and animals from the perspective of ethno biological angle is important for the understanding of indigenous knowledge systems. These resources are genetically important for future research.

Table- 1: Profile of ethno medicinal plants used by Kol tribes in Similpal Biosphere Reserve

Botanical name, Author, family and local name (Or)	Parts used	Disease/condition	Mode of application
Ageratum conyzoides *L. Asteraceae , Poksunga* (Or)	Whole plant	Skin diseases	The whole plant paste is applied to cure from skin diseases.
Annona reticulate L. Annonaceae,Ramphala(Or)	Seeds	Pregnancy	Mixture of seed powder with black pepper (*Piper nigrum*, about 3g) is prescribed for spoiling of pregnancy up to 3-4 months duration.
Annona squamosa L. Annonaceae Ramaphala (Or)	Root and leaves	Abortion of pregnancy	Dried root powder (5gm) is taken once in morning for five days by women for abortion of 3 to 4 months of pregnancy. The paste of leaves used as an external application from head to toe in scabies and dandruff.
Atylosia scarbaeoides (L.) Benth. Fabaceae Ban Kultha (Or)	Whole plant	Tape-worm, skin diseases	Pasty mass of seeds is taken with hot water twice continuously for fifteen days as a cure for tape-worm. The whole plant is boiled in water and bathed to children in skin diseases.
Bauhinia variegata L. Caesalpiniaceae Kanchano (Or)	Root- bark	Reducing bulkiness	Root- bark decoction (15ml) is taken once a day continuously one month in empty stomach for reducing bulkiness of the body.
Calycopteris floribunda Lam. Combretaceae Dubopatli (Or)	Leaves	Leg pain	Fresh leaves are roasted and the smokes are applied externally to get relief from broken leg pain and prompt repair.
Catharanthus roseus (L.) G. Don. Apocynaceae Sadabihari (Or)	Roots, Leaves.	Wounds, blood dysentery	Root paste is applied twice a day continuously seven days for healing of septic wounds and fresh leaf juice (few drops) mixed with a cup of water and is taken in empty stomach for the treatment of blood dysentery.

Chrysanthellum indicum DC. Asteraceae Sonnarasi (Or)	Flowers	Conception	Paste of the stem and banana flower is applied to the head of the women for ten days or so for preventing conception
Croton roxburghii Balak Euphorbiaceae Putuli (Or)	Root- bark	Subsiding or hastening, suppuration.	Paste of root-bark is heated and applied to boils for either subsiding or hastening suppuration.
Cyperus rotundus L. Cyperaceae Mutha (Or)	Rhizomes	Pneumonia	The tuber paste mixed with honey is given internally to heal ulcers. Ten piece rhizomes, 10 no of tender leaves and equal amount of *Piper nigrum* are made into paste to which a half cup of water is added. Daily one cup is taken along with breakfast in the morning for 7 days to cure pneumonia.
Euphorbia hirta L. Euphorbiaceae Cheldudhi (Or)	Leaves, latex, Whole plant	Fever, conjunctivitis	The paste of whole plant mixed with mango leaves is taken internally for malarial fever. The latex is applied to the eye lids in conjunctivitis.
Flacourtia indica (Burm.f.) Merr. Flacourtiaceae Kontaikoli (Or)	Stem-bark fruits	Eczema.	Infusion of crushed fruits is taken (150ml) in the morning for three days in painful urination. Stem bark paste is applied by rubbing the skin for the treatment of eczema.
Heliotropium indicum L. Boraginaceae Hati-sundha (Or)	Leaves	Insect bites	Fresh leaves are crushed and applied externally to cure from local insect bites.
Hygrophila auriculata (Schum.) Heine; Acanthaceae Koelekha (Or)	Leaves	Abdominal pain	Leaf extract is taken orally in abdominal pain and urinary infection.
Lantana camara L. var. aculeate (L.) Mold. Verbenaceae Nagaboiri (Or)	Whole plant	Fever	Decoction of plant (15ml) is taken for the treatment of tetanus and there is strict prohibition of taking of sour food during treatment and decoction of leaf is taken twice a day for a week after food for the treatment of malaria fever
Lygodium flexuosum (L.) Sw. Lygodiaceae Kalamahajal (Or)	Root	Blood dysentery	Powdered root 2g mixed with 1g *Piper nigrum* and 100ml of water are orally administered twice a day for 3 days to check blood dysentery.
Mesua ferrea L. Clusiaceae Nageswar(Or)	Flowers,	Stomach disorder	One teaspoonful of dust of dried flower buds and flowers are soaked overnight. Next day taken with pinch of salt in order to control stomach disorder.
Plumbago zeylanica L. Plumbaginaceae Dhola chitaparu (Or)	Root	Dysentery, piles, intestinal worm and skin diseases	Roots are useful in dysentery, piles, intestinal worm and skin diseases. Root decoction is used as anti-helmintic to kill intestinal worm. Root paste is applied externally in skin diseases.
Solanum torvum Sw. Solanaceae Dengabheji (Or)	Leaves, root	Menstrual problem	Boiled decoction of leaves is eaten to cure from red urine. Root extract are used to cure from menstrual problem.

The results reveal that nineteen plant species were used for medicine purposes in the surveyed area. The medicinal plant parts, whole plant, root, bark, leaves, rhizome, root, seed and whole plant were used in raw or cooked forms (Table 1). These species were used to treat 18 different diseases. The most cited diseases were: fever, dysentery, piles, and, skin diseases. Although this is first hand knowledge about ethno-medicine in Similpal, thorough pharmacological investigations are recommended since the

informants claim the uses with confidence and strong belief. This information was checked with available literature of Karuppusamy *et al*., (2001), Girach *et al.,* (1989) and Mishra *et al.,* (2001). The ethno-medicinal information provided in this study is new, as they have not been reported earlier. Thus, the information presented provides enough opportunities to study their active principles in terms of searching the modern drugs. Although these herbal remedies and their efficacy is claimed to be high detail clinical and experimental studies are needed for better utilization of traditional knowledge.

Conclusion

The local inhabitants of SBR have inherited reach traditional knowledge of the use of many plants or plant parts for the treatment of their common diseases. They often have the information on how to use the plants and to take or to apply the medicine for different diseases and health care. Due to poor condition of modern healthcare facilities and poverty, indigenous people of the district fully or partially depend on local medicinal plants.

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References

Ambasta, S. P., Ram Chandran, K., Kashyappa, K. and Chand R. 1992. *The Useful Plants of India*. Publications and Information Directorate, CSIR, New Delhi.

Chopra, R.N.,.Nayar, S.L. and Chopra,I.R. 1996. *Glossary of Indian Medicinal Plant* (Rep. Ed.). National Institute of Science Communication, CSIR, New Delhi.

Cunningham, A.B. 2001. *Applied ethnobotany, people wild plant use and conservation*. Earthsean Publishing Ltd. London and Sterling VA.

Girach, R.D., and Aminuddin, 1989. Ethnopteridological Notes on *Lygodium flexuosum* (Linn.) sw. *J. Econ. and Taxon. Bot*., 13: 255-257.

Gary and Martin, J.1995. *Ethnobotany - A methods manual*. Chapman and Hall, London. pp. 268.

Haines, H. H. 1921-25. *The Botany of Bihar and Orissa*. London. (Reprint, 1961, Calcutta).

Heywood, V.H. 1992. Conservation of germplasm of wild species. In: O.T. Sandlund, K.Hindar and A.H.D. Brown, (eds). *Conservation of Biodiversity for Sustainable Development*. Scandinavian University Press, Oslo, pp: 189-203.

Jain, S.K. and Rao R.R.1977. *A handbook of field and Herbarium Methods*. Today and Tomorrows Publishers, New-Delhi.

Jain, S.K.1987. *Glimpses of Indian Ethnobotany*. New Delhi: Oxford and IBH Publishing Co.

Jain, S.K.1991. *Dictionary of Indian Folk Medicine and Ethnobotany*. Deep Publications, New Delhi. p.135

Karuppusamy, S., Karmegam, N. and Rajasekaran,K.M. 2001. Enumeration, Ecology and Ethnobotany of ferns of Sirumalai hills, South India. *J. Econ. and Taxon. Bot*., 25: 631-634.

Kirtikar, K.R. and Basu, B.D. 1991. Indian Medicinal Plants. 4 Vols. (Repn. Edn). Lalit Mohan Basu, Allahabad.

Martin,G.J., 1995. Ethnobotany. Chapman and Hall, London.

Mishra, R.C., Panda P.C. and Das, A.P. 2001. Taxonomic study of the ferns and ferns allies of Gandhamardan hills, Orissa. *J. Econ. and Taxon. Bot*., 25: 577-590.

Naik, D. 1998. Tribal culture in the context of Similipal. *Workshop Journal. District Environmental Society*, Mayurbhanj, Orissa, India. pp. 63-64.

Santhya B., Thomas, S., Isabel, W. and Shenbagarathi, R.2006. Ethnomedicinal plants used by the Valaiyan community of Piranmalai hills (Reserved forest), Tamilnadu, India-Apilot study. *Afr .J. Trad. Cam* ., 3(1): 101-114.

Saxena, H.O. and Brahmam, M. 1994-96. The flora of Orissa. Regional Research Laboratory.Bhubaneswar, Vol 1-4.

Saxena, H.O., Brahmam, M. and Dutta, P. K.1988. Ethnobotanical studies in Similipal Forest of Mayurbhanj District (Orissa). *Bull. Bot. Surv. India*., 30: 83-89.