



Ethnomedicinal plants used by the Oraon tribals of Latehar district of Jharkhand, India

Birendra Kumar Roy¹, Ashok Kumar Mandal²

¹ Department of Botany, Faculty of Science and IT, Madhyanchal Professional University, Ratibad, Bhopal, Madhya Pradesh, India

² Department of Botany, P.K. Roy Memorial College, Binod Bihari Mahato Koylanchal University, Lohar Kulli, Saraidhella, Dhanbad, Jharkhand, India

Abstract

An Ethnobotanical study of medicinal plants of tribal areas of Ranchi District, Jharkhand was carried out to document the potentially important plant resources. The information on medicinal uses of plants is based on the extensive interviews with tribal healers who are practicing traditional knowledge of herbal treatment. The present study highlights useful Ethno-botanical information about the uses of plants by the Oraon tribes of the region.

Keywords: ethnomedicinal plants, tribal medicine, Oraon tribe, Latehar

Introduction

Medicinal plants play an important role in health care to humans since time immemorial. It has been observed that the Indian tribals have great love and knowledge of medicinal plants. They use them for wide range of health related problems ^[1]. The use of herbal treatment is increasing all over the world where the traditional knowledge has played a vital role. The tribal medicines are based mainly on medicinal plants found in their own locality. Information from ethnic groups or indigenous traditional medicine has played a vital role in the discovery of novel products from plants as chemotherapeutic agents ^[2]. The ethnic groups use the plants for food, fodder, medicine, drugs, clothing, agricultural implements, hunting, narcotics, poison, gums, dyes, insecticides and food etc. Hence, the field approach in the Ethnobotanical study of ethnobotany is a key source of information because it involves direct contact with an ethnic group for authentic traditional knowledge and medicinal plants.

Ethnobotany as a multidisciplinary science aims at investigating and inventorying traditional knowledge and Ethnomedicinal plants ^[1]. The state of Jharkhand is replete with Ethnomedicinal wisdom owing to a significant percentage of tribal population and rich biodiversity of medicinal plants ^[3,4]. Traditional medicine men known as vaidays or ojhas form the primary health care provider in rural Jharkhand. However, not many records of Ethnobotany of Jharkhand are found except a few researches done –Topno and Ghosh, 1999 ^[5], Sinha and Lakra, 2007 ^[6], Mondal and Rahaman, 2010, Laland Singh, 2012 ^[6], Bishnoi *et al.*, 2012 ^[7]. Documentation of Ethnomedicinal plants have been done by Bodding, 1925, 1927, and 1928 among the Santal tribe ^[8-10] and by Hembrom and Goel, 2005 among the Munda tribe ^[11].

Ethnomedicinal study among the Oraon tribe of Latehar District of Jharkhand is a new venture. The present study is the enumeration of Ethnomedicinal plants used by the Oraon tribals for the treatment of wide range of ailments.

Materials and Methods

Study Area

Ranchi district is the most populous district of Jharkhand state in eastern India. Ranchi, the capital of Jharkhand, is the district headquarters. It was established as a district in 1899. Ranchi is the capital of the Indian state of Jharkhand. Ranchi was the centre of the Jharkhand movement, which called for a separate state for the tribal regions of South Bihar, northern Orissa, western West Bengal and the eastern area of what is present-day Chhattisgarh. The Jharkhand state was formed on 15 November 2000 by carving out the Bihar divisions of Chota Nagpur and Santhal Parganas. Ranchi has been selected as one of the hundred Indian cities to be developed as a smart city under PM Narendra Modi's flagship Smart Cities Mission. During the time of British, the city was used to be the summer capital of Bihar. This is because of its climate during winter season. Ranchi is also one of the oldest cities in Jharkhand. Jagannath Temple and Ratu Palace are the sights which are also witness for the history of Ranchi. Now Ranchi is developing its economy. And for this its parks, special economic zones and industrial areas are being developed. Recently new sectors and modern areas are developed for the city's development. Ranchi is also called 'City of Waterfalls'.

Ranchi lies at 23°22'N 85°20'E near the Tropic of Cancer. The city covers an area of 175 km² (68 sq mi) and its average elevation is 651 m above sea level. Ranchi is located in the southern part of the Chota Nagpur plateau, which is the eastern section of the Deccan plateau.

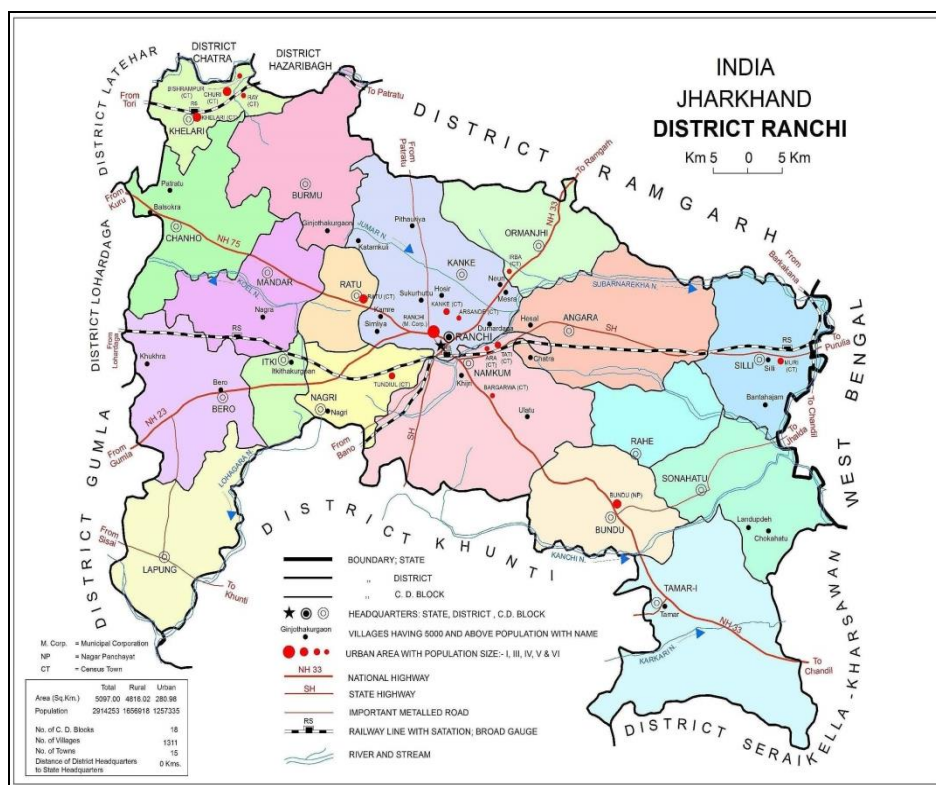


Fig 1

Collection of Data

The method of collecting information of the Ethnomedicinal plants was based on personal interview with tribal vaidhyas of various age groups residing in the villages of rural areas. The medicinal plants were photographed and the voucher specimens were collected along with the interviewed tribal vaidhyas. The collected data were compared and cross checked with the available data of the locally published booklets on medicinal plants to ascertain the validity. It was also observed that many villagers were acquainted with several medicinal plants used for common ailments like cold, cough, diarrhoea and dysentery. Some information was also collected by discussion with village Ojhas, teachers and village priests. The present Ethnobotanical research was put into field and literary research. The field trips for Ethnobotanical survey were made at different seasons to collect the Ethnobotanical species in flowering and fruiting stage.

Results and Discussion

The wide range of Ethnomedicinal plants were identified and documented from Ranchi Districts of Jharkhand. The data of most exploited medicinal plants such as the botanical name, family; vernacular name and the Ethnomedicinal usage are presented in Table 1. The enumeration of medicinal plants is arranged alphabetical order. Some of the plants identified are considered to be sacred by the Oraon tribals and use them in their rituals done at birth, marriage and death. Shorearobusta (Sal) is grown in their sacred groves. Sal leaves (leaf cups & plates) are used for any ceremonial worship. Nine poles of Sal with fresh branches are erected in the courtyard to make marriage pandals [18]. The branches of *Semecarpus anacardium* (Bhelwa), *Lagerstroemia parviflora* (Sidha), *Madhuca indica* (Mahua) and *Bambusa bambos* (Bans) are erected at the centre of marriage pandals. The tribals associate their festivals with the life cycle of some trees - Sarhul festival at the full bloom of *Shorea robusta* to pray for fertility of land and good harvest, Phaggu at the bloom of *Bombax malabaricum* (Semal) and *Ricinus communis* (Erandi). *Nauclea parvifolia* (Karam) is worshipped in Karam festival in which the saplings of *Zea mays* or *Shorgum vulgaris* are offered to Karam deity for healthy life, and the fruits of *Cucumis sativus* (Kheera) are offered to get good and healthy children from the deity [18]. The documented 67 herbal Ethnomedicinal formulations are used for 62 different kind of human ailments and consists of 72 plant species belonging 57 genera and 41 families. The plant parts used are mostly root / tubers 23 species, barks 15 species, leaves 13 species, whole plant 8 species, flowers 5 species, stem, fruits, seeds and latex/gum from 3 species each while the oil is used only from 2 species under present study (Figure 2). The tribal vaidhyas have acquired the Ethnomedicinal knowledge either from their ancestors or from the other reputed vaidhyas by training. The comparative studies show that most of the Ethnomedicinal plants used by the Oraon tribals are also being used by other tribals of Jharkhand for the same kind of ailments. The Euphorbiaceae and Apocynaceae are found to be

with the highest number of species (5) under present study followed by Combretaceae (4). Asteraceae, Malvaceae and Moraceae consist of 3 species each while Anacardiaceae, Asclepiadaceae, Celastraceae, Fabaceae, Myrtaceae, Scrophulariaceae, Solanaceae and Verbenaceae were found to have 2 species each while rest of the families are presented with 1 species each of the total documented medicinal plants. It was observed that the Oraon tribals mostly use paste formulations amounting 31 species while the other formulations are as follows –powder 17 species, decoction 12 species, chewing or making curry 12, pellets 3 species, infusion 4 species and oil 2 species under the present study (Figure 3). The number of formulations include black pepper, cow ghee, jaggery or mishri to sweeten the medicine. Triphala churna was found to be used by most of vaidhyas for stomach related ailments.

Table 1: Ethnomedicinal plants used by the Oraontribals of Ranchi, Jharkhand

S. No.	Botanical Name	Family	Vernacular Names	Ethnomedicinal Usage
1	<i>Acorus calamus</i> Linn.	Araceae	Ghorbaj	Rhizome powder with jaggery or honey is given orally for epilepsy and also used as antibiotic. Rhizome powder with water is given orally for worms in stomach. The powder with ghee is given orally for tuberculosis.
2	<i>Alstonia scholaris</i> R. Br.	Apocynaceae	Chatian	Bark paste is given orally for chest pain. The bark powder is mixed with the equal amount of root powder of <i>Ichnocarpus frutescens</i> and <i>Hemidesmus indicus</i> to make pellets, which are used for paralysis on treatment for three months. The bark powder is also used as antibiotic.
3	<i>Alternanthera sessilis</i> Linn.	Amaranthaceae	Gundru arxa	The root paste is applied on the forehead to treat headache.
4	<i>Anacyclus Pyrethrum</i> DC.	Asteraceae	Akkarkara	Flowers are chewed for bleeding gums. Root decoction is used for male vitality and also for toothache.
5	<i>Andrographis echinoides</i> Nees	Acanthaceae	Nadnaur	Paste of whole plant is given orally with water for cobra bite. It is also applied in the body to stop spreading of venom.
6	<i>Argemone mexicana</i> Linn.	Papaveraceae	Bakula kanta	Paste of whole plant is applied around scrotum to treat hydrocele
7	<i>Aristolochia indica</i> Linn.	Aristolochiaceae	Isharmul	Fresh or dried root paste of <i>Aristolochia indica</i> and <i>Rauvolfia serpentina</i> is given orally for snake bite. The paste is also applied in the body part of snake bite. Dried root powder <i>Rauvolfia serpentina</i> and <i>Aristolochia indica</i> is given orally for high blood pressure.
8	<i>Asparagus racemosus</i> Willd.	Asparagaceae	Kaisago	The tuber decoction is given orally to treat leucorrhoea, menstrual disorder and lactation. The powder of tubers is given orally to for male vitality and sexual debility.
9	<i>Boswellia serrata</i> Roxb.	Burseraceae	Salhai	The leaf paste is applied on the eyes for conjunctivitis. The decoction of the bark is given for anaemia.
10	<i>Butea monosperma</i> Lam.	Fabaceae	Murka	The infusion or decoction of flowers is given orally for sun stroke, also applied in the body. The seed powder is given orally for worms. The decoction of the bark is given orally for diarrhea and dysentery.
11	<i>Calotropis gigantea</i> Linn.	Asclepiadaceae	Gadsa	The paste of root bark is applied as painkiller for snake bite (viper).
12	<i>Cassia fistula</i> Linn.	Caesalpiniaceae	Sonarkhi	The paste of root bark with black pepper is given orally for snake bite (cobra). In case of Karait poison, the root of <i>Ichnocarpus frutescens</i> is added in the above preparation.
13	<i>Celastrus paniculatus</i> Willd.	Celastraceae	Munjni, Kujur	The seed oil is given orally to kids to increase intelligence and also to treat tuberculosis. The warmed oil applied on the scrotum to treat hydrocele. The oil is also used as antibiotic.
14	<i>Centella asiatica</i> Linn.	Apiaceae	Muxa arxa	The curry or chutney is consumed to increase intelligence. The paste is dissolved in a cup of water and mishri is added. It is taken orally to treat jaundice and diarrhoea.

15	<i>Curculigo ochioides</i> Gaertn	Hypoxidaceae	Dinda kita	The root powder is given orally for sexual weakness, impotency and erectile dysfunction in men. Women are given for menstrual disorder and leucorrhoea.
16	<i>Cuscuta reflexa</i> Roxb.	Cuscutaceae	Sindwair banda	The whole plant is fried and crushed in oil of <i>Celastrus paniculatus</i> which is used as massage oil for polio and arthritis.
17	<i>Dalbergia sissoo</i> Roxb.	Fabaceae	Shisham	The powder of tender leaves is given orally to produce strong semen in men. The paste of matured leaves is applied on forehead to treat headache.
18	<i>Datura metel</i> Linn.	Solanaceae Karia	Dhatura	The seeds are used as poison and hallucinogen. The pellets made of leaves <i>Datura</i> and <i>Adhatoda vasica</i> are given orally for asthma.
19	<i>Diospyros tomentosa</i> Roxb.	Ebenaceae	Tendu, Tela	The black bark is burnt in the fire to exorcize evil spirits. A fresh branch is erected in the paddy fields to protect from evil eyes. The paste of young fruits is applied to treat elephantitis.
20	<i>Elaeodendron glaucum</i> Pers.	Celastraceae	Ratangaur	The paste of bark is used in inflammation for snakeglaucum Pers. Niuri bite (viper). In case there has been gangrene, the paste is applied much thicker.
21	<i>Elephantopus scaber</i> Linn.	Asteraceae	Minjur chundi, Minjur jhuti	The root paste is administered orally to treat diarrhea and bed wetting by kids.
22	<i>Euphorbia thymifolia</i> Linn.	Euphorbiaceae	Sanni dudhi	The paste of whole plant is given orally with mishri in a glass of water for diarrhea and dysentery.
23	<i>Ficus benghalensis</i> Linn.	Moraceae	Bar, Bara	The aerial-hairy roots are chewed to increase male vitality and also to treat pyorrhea. The latex of tree is collected in sugar-candy and consumed for impotency. The latex is also collected in a piece of cloth and used as sticker to treat mumps.
24	<i>Ficus infectoria</i> Roxb.	Moraceae	Phutkal arxa	The decoction of tender buds is given orally for diarrhoea and dysentery. The boiled tender leaves are also consumed as vegetable.
25	<i>Ficus racemosa</i> Linn.	Moraceae	Dumbari	The root sap is added with mishri and given orally to treat jaundice. The unripe fruits are chewed and eaten for female infertility.
26	<i>Hemidesmus indicus</i> R. Br.	Asclepiadaceae	Badi dudhia larang	The root is used for making massage oil for polio and skin disease.

Discussion

The documentation of Ethnomedicinal plants started years back in 1925 by Bodding which was ushered further by Botanical Survey of India in 1969. Since then uses of medicinal plants by the tribals are being recorded for a variety of purposes [19]. The tribals depend on the plants among which they live and acquire knowledge of economic and medicinal properties of plants by trial and error. They are gradually losing the ancestral wisdom due to oral inheritance of the ethno-medicinal knowledge, and also getting quantitatively or qualitatively distorted in formulations [1, 7]. The other factor of losing accumulated knowledge is the modern education which alienates the well-educated tribals from their own system of medicine as they believe more in modern medicine. It is therefore essential to study ethnobotany and it must be documented and preserved because most of the tribals are being assimilated into modern societies and the treasure of knowledge of uses of plants resources is fast disappearing [1]. Sinha *et al.*, 2007, observed that the tribals have commendable knowledge of the medicinal plants to treat stomach ailments [20]. The author observed that the local folk treat not only diarrhoea and dysentery but also prevent malaria, alleviate snake venom, eliminate sexual related ailments and sexual debility effectively with herbal preparations. Hence, they are to be substantiated with pharmacognosy for their efficacies. The Conservation of Biodiversity of the Ethnomedicinal plants is an area of major concern. The endangered plant species viz. *Hemidesmus indicus*, *Gloriosa superba*, *Asparagus racemosus*, *Chlorophytum arundinaceum*, *Andrographis paniculata*, *Withania somnifera*, *Vitex peduncularis*, *Adhatoda vasica* and *Oroxylum indicum* are

on the verge of depletion due to illegal trading by the petty businessmen who allure the local folk to harvest them at cheap cost. The much sought after species viz. *Tinospora cordifolia*, *Vitex quadrangularis* and *Pterospermum acerifolium* are becoming rare. The tribals have identified several medicinal plants for their healthcare and wellbeing. They worship them and ask forgiveness before cutting of them for their livelihood. They have several socio-religious practices for the sustainable use of the plants around which they live. On the contrary, the government and the elite bureaucrats have often punished them under the banner of deforestation. Moreover, conservation of biodiversity and the sustainable use of plant resources requires due attention. It is the need of the hour to focus immediate attention for the plant conservation from the government and NGOs with the cooperation of rural tribals for creating awareness in all sections of people ^[1]. There is a need of better understanding among pharmaceutical companies, traders and forest departments to encourage local folks to cultivate endangered and rare plant species in order to conserve and exploit them in a sustainable manner. This will also lead the social upliftment and economic improvement of the local tribals.

References

1. Pareek A, Trivedi PC. Ethnobotanical Studies on Medicinal Plants of Kaladera Region of Jaipur District. Indian Journal of Fundamental and Applied Life Sciences, 2011:1(1):59-63.
2. Katewa SS. Indigenous people and Forests: Perspectives of an Ethnobotanical study from Rajasthan (India)- Herbal Drugs In: Ethnomedicine to Modern Medicine, 2009, 33-56.
3. Lal H, Singh S. Study of Plant Biodiversity of Hazaribag District Jharkhand India and its Medicinal Uses. Bioscience Discovery, 2012:3(1):91-96.
4. Mairh AK, Mishra P, Kumar K, Mairh J, Arundhati. Traditional botanical wisdom of Birhore tribes of Jharkhand. Indian Journal of traditional Knowledge, 2010:9(3):467-470.
5. Topno S, Ghosh TK. Correlation of uses of Medicinal Plants by tribals of Chotanagpur with other tribal of India. Journal of Economic and Taxonomic Botany, 1999:23(1):143-146.
6. Sinha R, Lakra V. Indigenous Health Practices of Tribal of in Ranchi District of Jharkhand. Indian Scientific and Industrial Research Magazine, 2007:15(1):74-79.
7. Bishnoi SK, Tomar JB, Saini KK. Healing the tribal way: Ethno-medicinal formulations used by the tribes of Jharkhand, India. Int. J. Med. Arom. Plants, 2012:2(1):97-105.
8. Bodding PO. Studies in Santal Medicines and Connected Folklore –I, The Santal Diseases. Mem. Asiatic Soc. Bengal, Calcutta, 1925:10:1-132.
9. Bodding PO. Studies in Santal Medicines and Connected Folklore – II, The Santal Diseases. Mem. Asiatic Soc. Bengal, Calcutta, 1927:10(2):133-426.
10. Bodding PO. The Santals and Diseases. Mem. Asiatic Soc. Bengal, Calcutta, 1928, 10.
11. Hembrom PP, Goel AK. Horopathy: Ethnomedicine of Mundas. International Journal of the Society of Ethnobotanist, 2005:17:89-95.
12. Anonymous 1. <http://latehar.nic.in>
13. Anonymous 2. <http://en.wikipedia.org/wiki/Latehar>
14. Anonymous 3. <http://www.census2011.co.in/census/district/106-latehar.html>
15. Anonymous 4. http://www.sameti.org/Soil_Inventory/Latehar_Soil_Analysis.pdf
16. Anonymous 5. http://en.wikipedia.org/wiki/Latehar_district#mediaviewer/File:Jharkhand_Latehar.png
17. Anonymous 6. <http://ourlatehar.files.wordpress.com/2011/10/latehar.jpg>
18. Anonymous 7. <http://kurukhworld.com/culture.html>
19. Jain SK. Glimpses of Indian Ethnobotany, Oxford and IBH Publishing Co., New Delhi, 1981.
20. Sinha R, Lakra V, Mahanta P. Traditional use of plants in curing stomach ailments by tribals of Jharkhand, Orissa and West Bengal. J. Dairying, Foods & H.S., 2007:26 (3-4):223-225.