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Ethnomedicinal plants used by tribals for typhoid in Ranchi district of Jharkhand, India

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Abstract
Ranchi is located in Jharkhand state. The total area is 5097 sq.km. Jharkhand is a homeland of 32 tribes including eight primitive tribes. Tribal communities living in biodiversity rich areas possess a wealth of knowledge on the utilization and conservation of medicinal plants. They have developed this traditional knowledge over several years of observations, trial and error, inference and inheritance. Some of the indigenous technologies are really effective, much cheaper than modern medicines, prepared by locally available natural resources and easy to prepare. Ethnobotanical inventories are made by conducting interviews with the tribal people, formal surveys in the field, collection and identification of plant specimen used. The information on medicinal plants was gathered from experienced tribal vaidyas which are being used as preventive against typhoid.

Keywords: Ethnomedicine, typhoid, tribals, treatment, Ranchi

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. 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.[1] 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 deals with total direct relationship between man and plants. The term "Ethnobotany" was coined by J.W. Harshberger, an eminent American Economic Botanist in 1896. "Ethnobotany is the study of the relationship which exists between people of primitive societies and their plant environment" [2].

In India the term "Ethnobotany" was used by Kirtikar and Basu. According to them "The ancient Indians be given the credit for cultivating what is now called Ethnobotany".[3]

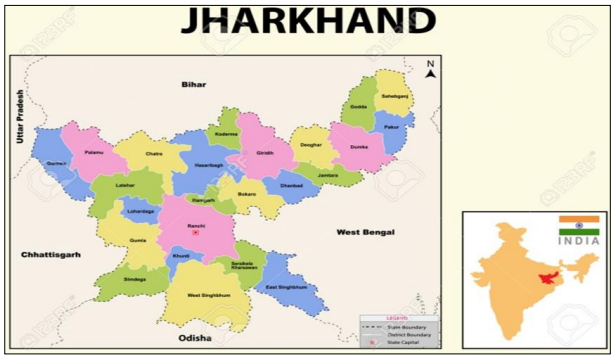
Tribal system of medicine (Hodopathy) cover many health related problems. The term "Hodopathy" has been coined by P.P.Hembrom, after his extensive work on herbal medicines that were in use by different tribes of Chotanagpur. Hodopathy means the tribal method of treatment with the indigenous herbs [4].

Keeping this in view, the present study is designed to explore the traditional knowledge on medicinal plants used for typhoid by tribal people residing in Ranchi district of Jharkhand, India.

Materials and methods

Study area

Ranchi district is one of the 24th districts of Jharkhand state in Eastern part of India. Ranchi the capital of Jharkhand lies between 22º30 and - 23º 30'N latitude and 85ºE - 86ºE longitude. It is located at an altitude of 654 m above sea level the annual average rainfall in Ranchi district is about 1530 mm. The whole district is covered by red sandy soil. The geographical area of the district is 5,097 sq.km. with total population of 29,14,253(Census, 2011). Among the tribals of Ranchi district, Mundas are the numerically dominant over other tribes followed by the Oraons and the Lohras.



Map- I: State of Jharkhand in India

Map-II: Ranchi District in Jharkhand

Data collection and plant identification

An ethnobotanical survey and studies were conducted during October 2020- December 2022.The data were collected with the help of questionnaires which containing the information about the tribal vaidya. The requisite ethnomedicinal properties of different plants were recorded through direct interview with the local people and practitioners on the basis of their traditional knowledge.

Plant specimens were collected in their flowering condition as far as possible. Routine methods of plant collection and herbarium techniques have been followed during the study. Photographs of the plants were also taken wherever possible. Plant specimens were identified with the help of relevant floras of The Botany of Bihar and Orissa Vol. I-Vol.VI. and standard literatures and the voucher specimens were kept at the Department of Botany, St. Xavier's college, Ranchi.

Results

The wide range of Ethnomedicinal plants were identified and documented from Ranchi district of Jharkhand. The results of the field survey have been presented in table 1. The collected medicinal plants are arranged in alphabetical order giving their Botanical name, followed by family, vernacular name (Nagpuri, Mundari), habit and the plant parts used for the ethnomedicinal formulations.

Table 1: Ethnomedicinal plants used for Typhoid treatment

Sl.No.	Botanical Name	Family	Vernacular Name(s)	Habit	Parts used
1.	*Adhatoda vasica* Nees.	Acanthaceae	H.- Adusa, N.- Bakaspati, M.- Arandi ba, Here ba	Shrub	Leaf
2.	*Andrographis paniculata* (Brum.f.) Nees.	Acanthaceae	H.-Kiryat, Mahatita, N.-Kalmegh, M.-Bhuinim	Herb	Leaf
3.	*Achyranthes aspera* L.	Amaranthaceae	H.-Chirchira, Latjira, M.-Sitirkad, Chirchiti	Herb	Leaf
4.	*Centella asiatica* L.	Apiaceae	H.-Mandukparni, N.-Beng sag, M.-Choke ara, Huring Chatom ara	Herb	Leaf/ Whole plant
5.	*Rauwolfia serpentina* (L.) Benth. ex Kurz.	Apocynaceae	H.-Sarpagandha, N.-Nagbail, M.-Ara ba, Huring supururid ba,, Daru jikipota	Shrub	Leaf
6.	*Ocimum tenuiflorum Linn.*	Lamiaceae	H.-Tulsi,, Kala tulsi, M.-Tunrusi	Herb	Leaf
7.	*Azadirachta indica* A. Juss.	Meliaceae	H.-Nimb, Nim, N.-Nim, M.-Nim daru	Tree	Leaf
8.	*Ficus religiosa* L.	Moraceae	H.- Pipal, M.- Jitia hesa	Tree	Leaf
9.	*Moringa oleifera* Lamk.	Moringaceae	H.-Sahijan, Munga, N.-Munga sag, M.-Munga ara	Tree	Bark
10.	*Nyctanthes arbor-tristis* L.	Oleaceae	H.-Harsinghar, M.-Saparom, Kula marsal, Chamgar	Tree	Leaf
11.	*Oxalis corniculata* L.	Oxalidaceae	H.-Amrul, N.-Amboti, Chalmori, M.-Pusigunju, Pirikatam, Husuki,, Piri Chatom ara	Herb	Leaf/ Whole plant
12.	*Cynodon dactylon* Pers.	Poaceae	H.- Dub, N.- Dubla ghans, M.- Dubila tasad	Creeper	Leaf
13.	*Aegle marmelos* Correa.	Rutaceae	H. & N.- Bel, M.- Lora daru, Sinju daru	Tree	Leaf
14.	*Scoparia dulcis* L.	Scrophulariacece	H.- Meetha ghas, M.-Madukam Koara, Chini buta, Chini sakam, Ote kantara, Merom med, Guru ara	Herb	Whole plant
15.	*Pterospermum acerifolium* Willd.	Sterculiaceae	H.-Kaniar, Machkunda, N.- Machkunda, M.- Makchund	Tree	Flower
16.	*Vitex negundo* L.	Verbenaceae	H.- Nirgundi, Sambhalu, N.- Sinduar, M.- Bigana, Huhuri, Sursing, Huri, Bigna	Shrub	Leaf
17.	*Vitex peduncularis* Wall.	Verbenaceae	H.-Nagbail, Nagpheni, N.-Charaigorwa,, Minjurgorwa, M.-Simkata, Marakata, Simjanga	Tree	Bark, Leaf

Abbreviations: H= Hindi, N= Nagpuri, M= Munda

Fig 1: Antityphoidal plants used in Ranchi district, Jharkhand

Discussion

A total of 17 plant species belonging to 15 families were documented under the present study. The plant families Acanthaceae and Verbenaceae are represented 2 times which is the most for any family in the present study. Amaranthaceae, Apiaceae, Apocynaceae, Lamiaceae, Meliaceae, Moraceae, Moringaceae, Oleaceae, Oxalidaceae, Poaceae, Rutaceae, Scrophulariaceae, Sterculiaceae have a single plant species out of the presented total of 17.

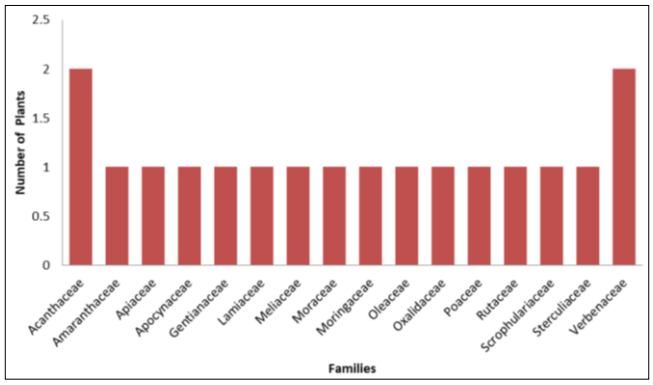


Fig 2: Family wise number of ethnomedicinal plants

The documented plant species under the study contain 16 dicot and 1 monocot. On the basis of the habit the used plant species belongs to five distinct categories viz. 6 herbs, 3 shrubs, 7 trees, and 1 creeper. This shows the preferred use of the herbaceous plants and trees in drug preparation by the native people of Ranchi.

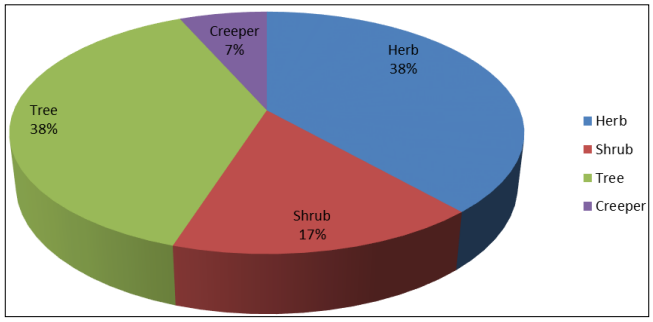


Fig 3: Percentage of the recorded plants according to plant type

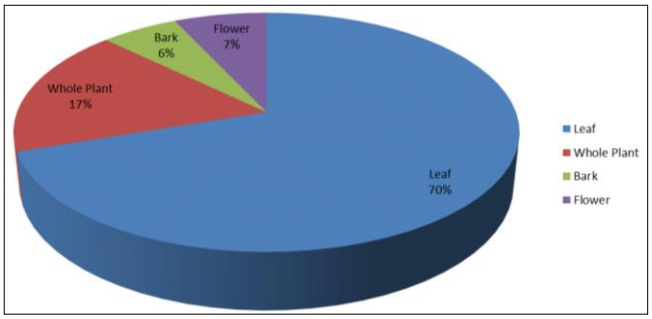


Fig 4: Medicinal plant parts and their percentage

The most frequently used plant part is leaf (11 species), bark (1 species), whole plant (3 species), flower (1 species each) under present study. More than one part of the plant *Vitex peduncularis* (bark & leaf), were found to be used in the documented herbal study. Marandi *et al.* (2014) [1] in their documentation on medicinal uses of plants highlighted that *Oxalis corniculata* Linn. leaves are made into paste with black pepper and given to typhoid.[5] Srivastava *et al.* (2015) [6] study resulted that the leaves of *Aegle marmelos*, *Cynodon dactylon* and *Allicum sativum* are used to cure typhoid.[6] *Viola odorata* and *Lactuca sativa* L. are another well known plant which has demonstrated interesting pharmacological properties to treat typhoid fever in Kurdistan region of Iraq.[7] A recent study find that *Terminalia arjuna* bark and leaves ethanolic extract and its different solvent fraction show strong antimicrobial activity against *Salmonella typhi* [8, 9, 10].

Conclusion

This is evident from the present study that there exists a wealth of traditional knowledge about medicinal uses of local flora in Ranchi. Typhoid is one of the most common disorder in both developing and developed countries. Different plants with medicinal properties have been explored in the area for the treatment of typhoid. Moreover due to oral inheritance of the ethno-medicinal wisdom there exists a continuous risk of their being going extinct or getting quantitatively or qualitatively distorted. These formulations of time and ages can only be safeguarded by their timely documentation, drawing and practicing proper conservation strategies for the plants and social strengthening of the people associated with them.

The study is likely to promote a rational use of botanicals and must be continued focusing on isolation and characterizing the active principles of the crude extract, its pharmacological validation, standardization and formulation. The indigenous art of healing is waiting to be transformed in an exact science.

Acknowledgement

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