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Studies on ethno-medicinal plants used by the Gond tribes of Bilaspur district from Chhattisgarh, India

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Abstract

The ethnobotanical study was carried out among the ethnic group (Gond tribe) in Bilaspur district from Chhattisgarh. A field survey of the study area was carried out during 2009 to 2008 document the medicinal use of plants occurring in the area by Gond tribe. Traditional uses of 54 plant species belonging to 40 families are described. The documented ethnomedicinal plants are mostly used to cure skin diseases, asthma, diarrhea, joint pain, cough, wounds, piles, urinary troubles, swelling and as an eye drop.

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Introduction

The people residing deep in the forest are totally dependent on plants for their food, shelter, medicine, etc. The proper utilization of plants effects their socio-economic development. Herbal medicine is in existence still time immemorial in many parts of the world (Qureshi and Ghufran, 2005). Traditional medicine can be defined as diverse health practices, approaches, knowledge and beliefs incorporating plant, animal, and mineral based medicines, spiritual therapies, manual techniques and exercises applied singularly or in combination to maintain well-being, as well as to treat, diagnose or prevent illness (Anonymous, 2002).

Ethnobotanical use of plants has been known since time immemorial and several plants were used to cure diseases and to maintain good health. Biodiversity is the very basis of human survival and economic wellbeing and constitutes the resources upon which families, communities, nations and future generations depend (Singh, 1994; Dowdeswell Elizabeth, 1995; Gupta et al., 2010). India is rich in medicinal plant diversity distributed in different geographical and environmental conditions and associated tribal and

folk knowledge systems. Tribal people mostly depend on forests for their livelihood. Up to 70% of the rural population still depends on traditional medicine as a primary healthcare source (Anonymous, 2003). Majority of the traditional medicines are prepared from plants. Plant based traditional knowledge has become a recognized tool in search for new sources of drugs and nutraceuticals (Sharma and Mujumdar, 2003). Some work on medicinal plants in relation to their utilization and conservation have been conducted in many parts (Chaudhari and Hutke, 2002; Jeruto et al., 2008; Gupta et al., 2010.)

Gond tribe constitutes as the second laes population tribe in India and largest tribe in Central India. The Gonds are known for their unique customs and traditions. They are mainly a nomadic tribe and call themselves as Koytoria. Gond Tribes are mainly located in Madhya Pradesh, Chhattisgarh, eastern Maharashtra, northern Andhra Pradesh and western Orissa. In Chhattisgarh, Gonds are the largest tribal group in terms of population and are mainly concentrated in the southern part of the state. More than 20% of Gonds in Chhattisgarh live in Bastar region only. There are 3 major sub-tribes of Gond in Bastar-Maria, Muria and Dorla (Haimendorfe, 1979; Soni et al., 2016).

The current deforestation trends, which threaten the existence of important traditional medicinal plants makes it inevitable that this information be made available and encourage preservation of their culture, traditional knowledge, conservation and sustainable utilization of the plant wealth occurring in the study area. Therefore, the study is an attempt to evaluate the unexplored traditional medicinal practices of Gond tribe of Bilaspur District. In the paper, some new and less known ethnomedicinal uses of 54 plants in the treatment of different diseases by the Gond tribe of Bilaspur District of Chhattisgarh have been reported.

Materials and methods

Study area

The present study was conducted in villages of Jemra Gram Panchayath that comes under Bilaspur District of Chhattisgarh State (Fig. 1). Information on the use of ethno-medicinal plants was collected during 2019-2020 through field surveys in small remote villages of the Bilaspur district. Jemra Gram Panchayath is situated between 22°31'05"N, 82°13'00"E, Bilaspur is a second population district and also enriched with forest resources.

Methods

Data collection

Primary data was gathered through semi-structured interviews that were held with selected elders, vaidya and knowledgeable person through questions e.g. Medicinal plants found local area, Their Name, Uses, Method of using, which part is utilizing for medicinal purpose and Object of collecting that plant. At the end of each interview, plant specimens were collected, dried, and preserved (Jain and Rao, 1977). Plants samples of recorded herbs, climber, shrubs and trees were identified with the help of local floras and previous literature (Kumar, 2003; Khanna et al., 2005; Verma et al., 1985; Panigrahi and Murti, 1989; Murti and Panigrahi, 1999). Ethno-medicinal plant based remedies were presented with botanical name of species followed by local name, parts used, mode of preparation and ethnomedicinal uses (Jain, 1991).

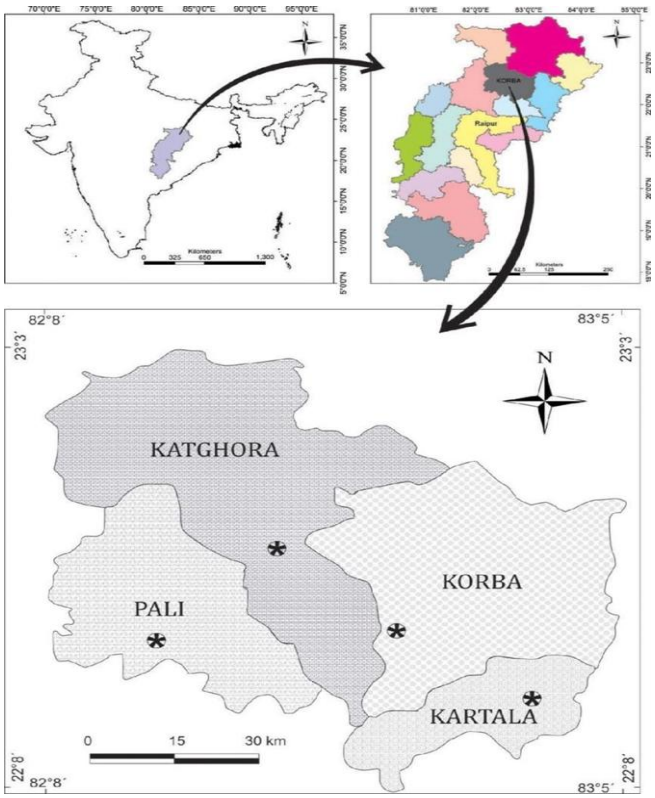

Fig. 1: Map showing the location of the study area.

Results and discussion

The present investigation indicates a high level of consensus of traditional knowledge of medicinal plants within Gond tribe community. The results of this study show that a large number of medicinal plants are traditionally used by the tribal community of Jemra beat for the treatment of various diseases or health disorders of man. In the present study, 54 plant species were reported and arranged alphabetically by the botanical name. Vernacular name (Hindi), family, parts used and their administration have also been given (Table 1).

Table 1. Ethnomedicinal uses of plants by Gond tribe.

Botanical name	Family	Habit	Uses
Abrus precatorius L.	Fabaceae	Climber	Juice made from the leaf is used to heal burnt wounds
Achyranthes aspera L.	Fabaceae	Herb	Leaf juice is used as medicine for scorpion bite. Root paste used to treat infertility in women.
Acorus calamus L.	Acoraceae	Herb	Leaf paste is used to treat cold fever.
Aegle marmelos (L.) Corrêa	Rutaceae	Tree	Dried fruit pulp is used to reduce heat.
Aerva lanata (L.) Juss.	Amaranthaceae	Herb	Leaf juice is consumed during weakness.
Alstonia scholaris (L.) R. Br.	Apocynaceae	Tree	Bark powder is mixed with water and consumed to treat vomiting.
Ammania baccifera L.	Lythraceae	Herb	Leaf juice is used to heal bleeding wounds.
Andrographis paniculata (Burm.f.) Nees	Acanthaceae	Herb	Juice made from entire plant is used to treat fever and malaria.
Anogeissus latifolia (Roxb. ex DC.) Wall. Ex Guillem. & Perr.	Lythraceae	Tree	Decoction made from entire plant is used as medicine for diarrhea
Argemone mexicana L.	Papaveraceae	Herb	Flower is crushed and juice is used to treat malaria.
Azadirachta indica A.Juss.	Meliaceae	Tree	Decoction from Leaf juice is consumed to treat chickenpox and fever.
Bauhinia vahlii Wight & Arn.	Caesalpiniaceae	Tree	Leaf paste is applied over part of the body where swelling is occurring to treat swelling.
Boerhavia diffusa L.	Nyctanthaceae	Herb	Paste made from Leaf powder is applied over skin to treat urinary infections.
Bombax ceiba L.		Tree	Powder from thorn is applied on skin to treat chicken pox.
Boswellia serrata Roxb. ex Colebr.	Burseraceae	Tree	Resin extract is consumed to reduce heat.
Butea monosperma (Lam.) Taub.	Fabaceae	Tree	Flower is dried and powder is consumed to treat diabetes.
Calotropis gigantea (L.) Dryand.	Asclepiadaceae	Herb	White sap from leaf, steam is applied over wounds pricked with thorns to remove pricked thorns. Leaf is used to treat dog bite, leaf is dried and paste made from powder is applied over parts.
Carica papaya L.	Cariaceae	Tree	Sap from fruit is applied over many skin infections.
Cassine glauca (Rottb.) Kuntze	Celastraceae	Tree	Leaf powder is used for joint pain. Stem powder used to treat dysentery. Fruits used as medicine for diarrhea. Stem powder used to treat dysentery.
Celastrus paniculatus Willd.	Celastraceae	Liana	Oil prepared from seed is used as medicine for joint pain. Oil is applied over joints directly once a day
Cleome viscosa L.	Cleomaceae	Herb	Leaf paste is applied over wounded parts to heal wounds.
Cynodon dactylon (L.) Pers.	Poaceae	Herb	Leaf juice is consumed by sick people.
Cyperus scariosus R.Br.	Cyperaceae	Herb	Root powder is used to clean the teeth in form of tooth powder.
Dillenia pentagyna Roxb.	Diliniaceae	Tree	Unripe fruit is consumed as medicine for diabetes.

Table 1. Contd…

Botanical name	**Family**	**Habit**	**Uses**
Diospyros melanoxylon Blume	Ebenaceae	Tree	Leaf is used to cure night blindness and other eye related problems
Euphorbia hirta L.	Euphorbiaceae	Herb	Entire fruit is consumed to treat menstruation problems.
Ficus racemosa L.	Moraceae	Tree	Powdered bark is mixed with water and consumed to treat piles.
Ficus religiosa L.	Moraceae	Tree	Powdered bark is mixed with water and consumed to treat piles.
Gardenia latifolia Aiton	Rubiaceae	Shrub	Resin extract is consumed to treat migraine.
Gmelina arborea Roxb.	Verbenaceae	Tree	Leaf paste is applied over swollen body parts and used to treat swelling.
Grewia hirsuta Vahl	Tiliaceae	Shrub	Leaf decoction is applied to heal back pain.
Grewia rothii DC.	Tiliaceae	Shrub	Decoction from root is consumed to treat snake bites.
Hemidesmus indicus (L.) R. Br. ex Schult.	Asclepiadaceae	Climber	Root extract is used for treating skin infections
Holarrhena pubescens Wall. ex G.Don	Apocynaceae	Tree	Bark powder is consumed used to treat fever. Root paste is applied over many skin infections
Ixora parviflora Lam.	Rubiaceae	Shrub	Root conoction is consumed to treat snake bite.
Mangifera indica L.	Anacardiaceae	Tree	Dried seed powder is consumed to treat diabetes
Moringa oleifera Lam.	Moringaceae	Tree	Curry made from leaf is consumed by pregnant women as it is considered to give strength
Nyctanthes arbor-tristis L.	Oleaceae	Tree	Leaf paste is applied over wounded parts used to heal wounds of animals, leaf juice is consumed to treat Diabetes
Ocimum gratissimum L.	Lamiaceae	Herb	Leaf is crushed and consumed to treat cough, fever
Oroxylum indicum (L.) Kurz	Bignoniaceae	Tree	Leaf extract is used to treat liver disorders
Phyllanthus emblica L.	Euphorbiaceae	Tree	Fruit is dried and consumed for good for digestion and treat eye problems.
Psidium guajava L.	Myrtaceae	Small tree	Leaf is chewed used in oral care. Fruits is also consume in treatment of piles
Radermachera xylocarpa (Roxb.) Roxb. ex K.Schum.	Bignoniaceae	Tree	Stem bark powder consumed treat asthma
Randia spinosa (Thunb.) Poir.	Rubiaceae	Shrub	Leaf paste is applied over skin to treat skin infection.
Smilax zeylanica L	Asparagaceae	Climber	Powder from dried root is used to treat dental problems.
Solanum indicum L.	Solanaceae	Herb	Powder from dried leaf is used to make balls and consumed to reduce back pain in women.
Spermacoce neohispida Govaerts	Rubiaceae	Herb	Flower paste is used to remove marks of wounds.
Terminalia arjuna (Roxb. ex DC.) Wight & Arn.	Combretaceae	Tree	Bark powder is mixed with water and consumed to reduce fat in body
Terminalia bellirica (Gaertn.) Roxb.	Combretaceae	Tree	Fruit is consumed to treat joint pains.
Terminalia chebula Retz.	Combretaceae	Tree	Fruit is consumed to treat cough.
Terminalia elliptica Willd.	Combretaceae	Tree	Fruit powder is used to heal wounds
Wendlandia heynei (Schult.) Santapau & Merchant	Rubiaceae	Shrub	Powder from bark and dried root is consumed to treat dysentery problems.
Xanthium strumarium L.	Asteraceae	Herb	Decoction Plant is used to heal bleeding wounds, treat bones and toothache.

Fig. 1: A. Interaction with Vaidya/Healer for documentation. B. A local villager showing *Bauhinia vahlii* collected from forest. C. *Grewia hirsuta* plant decoction prepared by a Vaidya/Healer. D. Interaction with Biodiversity Management Committee member of Jemra Village. E. *Gmelina arborea, Terminalia chebula* and *Phyllanthus emblica* are locally known as mahua kept for drying in front of the house.

The reported species belong to 48 genera and 40 families with a highest representative of four species belong to the family Combretaceae and three species belong to the family Fabaceae and Rubiaceae. The families Apocynaceae, Asclepiadaceae, Bignoniaceae, Caesalpiniaceae, Celastraceae, Euphorbiaceae, Lythraceae, Moraceae and Tiliaceae have two species each. whereas the rest of 22 families have one species each Acoraceae, Amaranthaceae, Anacardiaceae, Asparagaceae, Asteraceae, Burseraceae, Cariaceae, Cleomaceae, Cyperaceae, Diliniaceae, Ebenaceae, Lamiaceae, Meliaceae, Moringaceae, Myrtaceae, Nyctanthaceae, Oleaceae, Papaveraceae, Poaceae, Rutaceae, Solanaceae and Verbenaceae. The information's collected from this study are in agreement with the previous reports. Traditional ethnomedicinal plants listed in (Table 1) were used in more than 34 types of diseases. Maximum numbers of 5 species were used to cure wounds and bleaching wounds followed by 3 species were used to cure fever, malaria and back pains were using 7 plants for the treatment of skin diseases. 26 species used to cure fever, cough, diarrhea, swelling, piles, infertility women, urinary infection, diabetes, dog bite, snake bite, Join paints, toothache and dysentery. One species was used to treat vomiting, chicken pox, migraine, reduced fat, reduced head, asthma, eye problem, menstruation problems and bonesetters.

Leaves are the most extensively used plant part in the preparation of medicine for various ailments is the leaf (19 species), followed by stem bark (5 species), fruits (5 species), roots (4 species), whole plant, seeds, resin and flowers are each 2 species and sap from one species.

The majority of the remedies were prepared in the form of juice from freshly collected plant parts. The plant materials were used in fresh form or in dried form and most of the plants to be used as a remedy were stored for later use in the dry state, which allowed their utilization throughout the year. This was in accordance with the work of Ignacimuthu et al. (2006) and Dhivya and Kalaichelvi (2015).

Conflict of interest statement

Authors declare that they have no conflict of interest.

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