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Promising medicinal plants their parts and formulations prevalent in folk medicines among ethnic communities in Madhya Pradesh, India

Abstract

India is a resipository of medicinal plants rich in herbal treasure and floristic wealth. Plants are being used since ancient times as a source of drugs as depicted from Indian ancient Hindu scriptures like Rigveda (4500-1600 BC), Charak samhita (1000-800 BC), Sushrut Samhita (800-700 BC). The medicinal plants play an important role in folk-medicines among 104.2million ethnic communities inhabited in 5000 villages in India where no such modern facilities of hospitals exits, and also plays a significant role in socio-cultural, spiritual, health needs of communities, across the globe in developing and developed countries. Gradually, 85% of the herbal and folk-medicines are derived from plants on which 4.3billion people rely, across the globe. In Indian sub-continent folk-medicines are still prevalent among 25.2% of ethnic community in Madhya Pradesh are inhabited in 15% of the total geographical population of the country, who had accumulated a great amount of knowledge on use of plants. The paper precisely depicts some of the promising plants prevalent in Ethnic pockets viz. Chhatarpur, Satna, Jabalpur, Seoni, Chhindwara and Hoshanagabad districts in Madhya Pradesh in India.

Keywords: medicinal plants, herbal treasure, floristic wealth, drugs, hindu scriptures, folk-medicines, ethnic communities, artharva veda, charak, sushrita, tribal communities, gond, baiga, bhariya, bhil, bhilala, korku, kol, bediya, pardhi, khairwar, sahariya

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Introduction

India has a rich knowledge on plant based drugs both for use in preventive and curative medicines. The classical work of the "Artharva Veda", many ancient Indian Scholars like "Charak" "Sushrita" and others had played a vital role in describing Indian medicinal Plants. The history of herbal medicines in India is thus very old, perhaps the oldest use of plants in herbal medicine had been documented in Hindu scriptures like Rigveda (4500-1600 B.C.), Charak Samhita (6^{th}-2^{nd} century BC), Atharvaveda (200 BCE-1000 BCE) who are known to had accumulated a great amount of knowledge on use of various plant species. The ethnic communities comprises of Gond, Baiga, Bediya, Bhil, Bhilala, Bhariya, Korku, Pardhi tribes been reported to be used in Indian sub-continent, but 500 of them are most commonly employed by different ethnic communities prevailing in the country.[1] The Indian sub-continent is inhabited by large number of ethnic communities and they live in forest and forest fringe areas.[2–7] The Indian state of Madhya Pradesh 22.9734° N, 78.6569° E wherein the present study has been carried out, is inhabited by various tribal communities, who are known to have accumulated a vast knowledge on use of various plant species. The review of literature reveal's that much work has been done on ethno-medicinal plants in Madhya Pradesh along with the documentation of floristic study and herbal medicines carried out by numerous ethnobotanist's.[8–22,25–32,34–38,40] but still there are some interior areas with pre-dominance of ethnic communities which need to be intensively surveyed.

Materials and methods

Study site

The present study had been carried out in state of Madhya Pradesh in India, lies between latitude 17^0 48′ N and 26^0 52′ S and between longitude 74^0 2′ N to 84^0 24 ′ E in state of Madhya Pradesh; where by large number of tribal communities with wide diversity in ethnic races viz. Gond, Baiga, Bhariya, Bhil, Bhilala, Korku, Kol, Bediya, Pardhi, Khairwar, Sahariya etc. Ethno-medicinal data was collected in during survey conducted between theyears 2013-2016 in six tribal dominated districts of Jabalpur, Seoni, Chhattarpur Satna, Hoshangabad and Chhindwara in states of Madhya Pradesh, India between 2013 September to 2016 February

Data collection

The present investigation was carried out during 2013 September to 2016 February and data was collected from six clusters as shown in Figure 1. The study was conducted by interviews followed by focus group discussions with local indigenous communities. During the visits a number of traditional herbal healers and, elderly persons of tribal communities, were contacted and information was collected through interview, observations and discussion held during field survey. These medicinal plants were collected from wild. The local traditional herbal healers (vaids) had specialized knowledge about availability of these plants (trees, shrubs, herbs, and climbers) as well as their seasonal availability and time of collection for roots, leaves, seeds and fruits in cure of various ailments and preparation of herbal formulations.

Interview with informants of knowledge

The informants were asked about ethno-botanical uses from 25 respondents habitat in districts of Jabalpur, Seoni, Chhattarpur, Satna, Hoshanagabad and Chhindwada comprising of local vaidraj, traditional healers for 25 ailments and prescription presented in Table

1 for the ethno-botanical data (Local name of plant, Family, plant part used, formulation in medicine in cure of ailments were recorded for descriptive response. Moreover, these findings indicate awareness about folk medicines prevalent among ethnic communities in different tribal localities. The information is presented in Table 1.

Table 1 Cure of ailments from herbal folk medicines prevalent among ethnic communities in MP

S.No	Disease	Medicinal plant	Local name	Family	Plant category	Plant part	Formulation	Locality
	Arthritis	*Vitex negundo* Linn.	Nirgundi	Verbenaceae	Shrub	Leaf	Oil	Turkakhapa, Hoshangabad
		Celastrus paniculata Willd.	Malkangni	Celastraceae	Climber	Seed	Oil	Majghganwan, Satna.
	Asthma	*Abelmoschus esculentus* Linn.	Vanbhindi	Malvaceae	Shrub	Seed	Decoction	Nibhora, Jabalpur .
		Zingiber purivren Willd.	Jangali adrak	Zingiberaceae	Herb	Rhizome	Paste	Mandikoh, Hoshanagabad
	Baldness	*Adhatoda vasica* Nees	Adusa	Acanthaceae	Herb	Stem	Paste	Satai, Chhattarpur
		Ecilipta alba (Linn.) Hassr.	Bhringraj	Asteraceae	Herb	Leaf	Paste	Baldeogoan, Satna.
	Blood Pressure	*Terminalia arjuna* (Roxb.) Wgt & Arn.	Arjun	Combreataceae	Tree	Bark	Decoction	Kundam, Jabalpur
	Bronchitis	*Embelia ribes* Burm.f.	Vaividang	Myrsinaceae	climber	Root	Paste	Banjari, Seoni
		Lygodium Spps.	Choti Bhulan	Lygodiaceae		Root	Powder	Dhuma, Seoni
	Cancer	*Grewia hirsuta* Vahile	Gursakri	Tiliaceae	Shrub	Whole Plant	Powder	Chhapara, Seoni
		Grewia tilifolia Vahile	Dhaman	Tiliaceae	Tree	Bark	Powder	Banjari ,Seoni
	Dysentry	*Litsea glutinosa* (Lour)Rob.	Maida lakdi	Lauraceae	Tree	Bark	Powder	Gwari, Jabalpur.
		Rubia cordiflolia Linn.	Moyen	Rubiaceae	Tree	Bark	Paste	Patalkot, Chhindwara.
	Fracture	*Cuscuta reflexa* Roxb	Amarbel	Convolvulaceae	Climber	Panchang	Paste	Banjari ,Seoni
		Cissus quandrangularis Linn.	Hadjodi	Vitacea	Climber	Stem	Paste	Chitrakoot, Satna
	Jaundice	*Cypersus scarious* R.Br.	Gundla	Cyperaceae	Herb	Root	Powder	Patalkot, Chhindwara.
		Boerhaviaa diffusa Linn.	Punarnava	Nyctaginaceae	Herb	Panchang	Powder	Majghganwan, Satna.
	Headache	*Ocimum sanctum* Linn.	Tulsi	Lamiaceae	Herb	Leaf	Paste	Pondi,Jabalpur
		Achyranthus asper Linn.	Apamarg	Amarathaceae	Herb	Root	Paste	Kishangarh Chhatarpur
	Joint Pain	*Curcma amada* Roxb.	Ama Haldi	Zingiberaceae	Herb	Rhizome	Paste	Patalkot, Chhindwara
		Jatropha curcus Linn.	Ratanjot	Euphorbiaceae	Shrub	Seed	Oil	Kishangarh , Chhatarpur.

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Table Continued..

S.No	Disease	Medicinal plant	Local name	Family	Plant category	Plant part	Formulation	Locality
	Impotency in Males	*Asparagus racemosa* Willd.	Satawar	Liliaceae	Climber	Root	Powder	Paghdal, Hosangabad
		Amorphophallus paeoniifolius (Dennst.) Nicolson.	Jimikand	Araceae	Herb	Rhizome	Powder	Batka khapa Chhindwara
	Impotency in Females	*Curculigo orchiodies* Gaerthn.	Kali Musli	Amaryllidaceae	Herb	Root	Powder	Chitrakoot, Satna
		Bryonopsis laciniosa Linn.	Shivlingi	Cucurbitaceae	Climber	Seed	Powder	Sohagpur, Hosangabad
	Jaundice	*Phyllanthus niruri* Linn.	Bhui Amla	Euphorbiaceae	Herb	Panchang	Powder	Patalkot Chhindwara
		Citrullus colocynthis (L.) Schrad	Badi Indrayan	Cucurbitace	Herb	Seed	Powder	Panagar Jabalpur
	Leucorrhoea	*Evolvulus alsinoides* Linn.	Shankhpuspi	Convolvulaceae	Herb	Flower	Powder	Nibhora, Jabalpur
		Smilex perfoliata Lour.	Ramdatun	Smilaceae	Climber	Stem	Powder	Patalkot, Chhindwara
	Leucoderma	*Ocimum sanctum Linn.*	Tulsi	Lamiaceae	Herb	Leaf	Paste	Buxoi, Chhatarpur
	Lactation	*Euphorbia hirta* Linn.	Badi dudhi	Euphorbiaceae	Herb	Leaf	Paste	Shahpura, , Jabalpur
	Loss of appetite	*Hemidesmus indicus* Linn.	Anantmool	Apocynaceae	Shrub	Root	Decoction	Banjari , Seoni
	Malarial Fever	*Andrographis paniculata* (Burm.f.)	Kalmedh	Acanthaceae	Herb	Whole Plant	Decoction	Thanakheda, Chhindwara
		Nyctanthes arbortristis Linn.	Harsingar	Oleaceae	Tree	Leaf	Decoction	Majhgaon, Satna
	Migraine	*Citrullus colocynthis* (L.) Schrad	Badi Indrayan	Cucurbitace	Climber	Seed	Powder	Nayagaon, Jabalpur
		Terminalia bellirica (Gaertn.)Roxb.	Bahera	Combretaceae	Tree	Fruit	Powder	Kishangarh, Chattarpur
	Memory Loss	*Bacopa monnieri* (Linn.) Pennell	Bramhi	Scrophulariaceae	Herb	Leaf	Decoction	Thanakheda, Chhindwara
		Evolvulus alsinoides Linn.	Shankhpuspi	Convolvulaceae	Herb	Whole Plant	Decoction	Nibhora, Jabalpur
	Piles	*Dioscorea bulbifera* Linn.	Baichandi	Dioscoreaceae	Climber	Rhizome	Powder	Rated, Chhindwada.
		Eranthemum purpuras Nees.	Van Tulsi	Acanthaceae	Herb	Stem	Powder	Devara, Chhattarpur.

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Table Continued..

S.No	Disease	Medicinal plant	Local name	Family	Plant category	Plant part	Formulation	Locality
		Thespsia potulnea (L.) Sol. ex Corrêa	Paras peepal	Malvaceae.	Tree	Seed	Paste	SeoniMalwa, Hoshangabad
	Skin Diseases	*Pongammia pinnata* (L.)Pierre	Karanj	Fabaceae	Tree	Seed	Oil	Banjari , Seoni
		Boerhavia diffusa Linn.	Punarnava	Nyctaginaceae	Herb	Leaf	Paste	Buxoi, Chhatrpur
	Snake Bite	*Mucuna pruriens* (L.)DC	Kemach safed	Fabaceae		Seed	Paste	Sihora, Jabalpur
		Tinospora cordifolia (Thunb) Miers	Giloy	Menispermaceae	Shrub	Root	Paste	Batka Khapa, Chhindwada
	Stomach worm	*Embelia ribes* Burm. F	Vaividang	Myrsinaceae	Herb	Root	Paste	Harrai, Chhindwara
	Toothache	*Spilanthus oleraceae* Linn.	Akarkara	Areaceae	Herb	Flower	Powder	Barela Jabalpur
		Solanum nigrum Linn.	Bhatkatiya	Solanaceae	Herb	Root	Decoction	Chhind, Chindwara
		Amaranthus aspera Linn.	Apamarg	Amaranthace	Herb	Root	Paste	Majhgaon, Satna
	Ulcer	*Gloriosa superb* Linn	Kalihari	Liliaceae	Climber	Root	Paste	Patalkot, Chhindwara
		Leea macrophylla (Roxb.) ex. Horn.	Hathphan	Vitaceae	Herb	Root	Powder	Nayagoan, Jabalpur

Results and discussion

The Ethno-medicinal survey was conducted in six districts of Madhya Pradesh, India which are having predominance of ethnic communities as shown in Figure 1. The study reveals that a large number of traditional healers (Vaidraj) belonging to different ethnic communities residing in different pockets of Madhya Pradesh are utilizing medicinal plant and their parts collected from herbs, shrubs, climbers and trees comprising from different plant families (Figure 2). The information was recorded from 25 traditional healers and elderly persons of ethnic communities belonging to Gond, Bhariya, Korku, Pardhi, Bhilala, Bediya and Kol tribes on 49 plant species with 54 uses of plants and their parts in different formulations such as powder, paste, decoction, extract, oil, raw and cooked parts of root, leaf, stem, whole plant (panchang), rhizome, bark and flower (Figure 4) used in cure of ailments viz. Arthiritis, Asthma, Baldness, Bronchitis, Cancer, Joint Pain, Dysentry, Fracture, Headache, Jaundice, in cure of Impotency in males and females, Leucorrhoea, Leucoderma, Loss of appetite, Malarial fever, Migraine, Memory loss, Piles, Skin infection/disease, Snake-bite, Stomach worms, Tooth-ache and Ulcer as presented in Table 1 & Figure 3. The plant species listed are found in abundance in forest eco-system.

The study revealed medicinal plants and their parts as rhizome, root, stem, leaves, seeds, fruits flower, and bark of trees, herbs, shrubs and climbers are used in preparation of formulations viz. powder, paste, decoction, oil, raw edible and roasted forms (Figure 2) (Figure 4) are being used by traditional healers and vaidraj. They have vast knowledge about plants available in and around their habitat and plant parts used in preparation of different formulation, dosages and mode of administration (Figure 3) in primary health care of localities in dense forest.

Figure 1 Study districts: Chhatarpur, Satna, Jabalpur, Seoni, Chhindwara & Hoshanagabad.

The results of plants used, formulations and dosages were different and not previously reported in any similarly conducted studies to document ethno-medicinal uses. As it is very clear from literature reviewed that different plant species were used in different tribal pockets of Madhya Pradesh like Gond tribes in Sagar district,[8] Kol tribes in Rewa district,[9] Baiga and Gond tribes in Mandla district in MP,[11–14] Bheel tribes in Guna district[23,24] Chambal eco-region[22] and Bhil tribes in Jhabua district,[24] Sahariya and Baiga primitive and other tribes in Madhya Pradesh,[25–33] Gond, Bhriya and Korku tribes of Madhya Pradesh,[28,29] Bheel tribes in Jhabua district[41] in Khargone districts,[42] Bhilala tribes in Alirajpur district,[43] Sahariya tribe in Guna district.[44]

The medicinal plants and their parts to cure ailments were documented (Figure 3) are used to prepare various formulations are prevalent since hundreds ofyears and are orally communicated from one generation to another, the discussions with local healers and villagers further revealed that the preferences in species to cure of ailments vary from one species to another species as a number of plants are used in cure of a particular ailment and the species, plant part used, formulation such as powder, paste, decoction, extract also vary from village to village in different tribal pockets, based on the ethnic culture and seasonal availability of medicinal plants as presented in Table 1. Based on the findings of present study, it has been found that tribal communities had rich knowledge on herbal folk medicines and distribution of plants around their habitat and used by them in cure of various ailments, and this vital knowledge is transmitted from one generation to another through oral communication as reported by.[6,8,10,14,21,22,25–32,36,39,40] The villagers use different forest plant species in their daily life. Documentation of such information's is useful for further generation as well as for their daily life. Hence due to changing life style detailed study of ethno-botanical studies became necessary to document traditional knowledge as it is at the stage of disappearance.

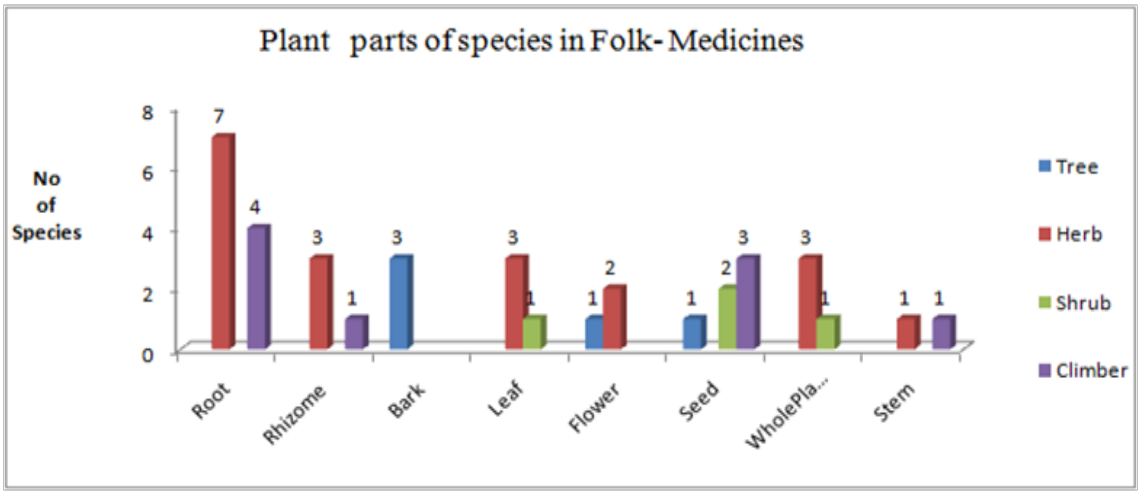

Figure 2 Plant parts of species prevalent in Folk-Medicines.

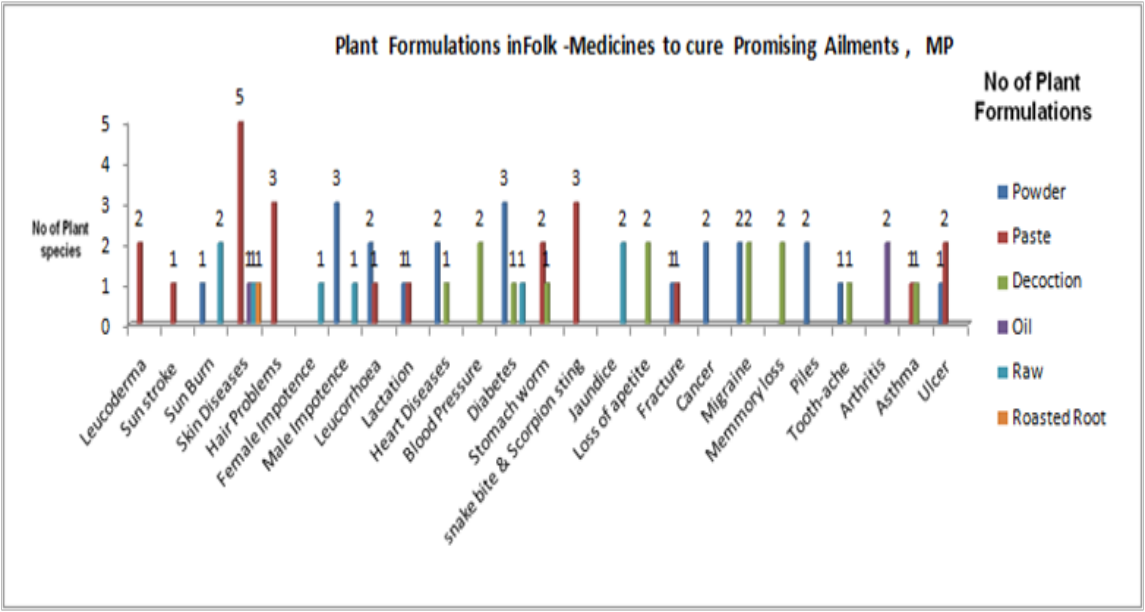

Figure 3 Plant formulations in folk medicines to cure promising ailments in Madhya Pradesh.

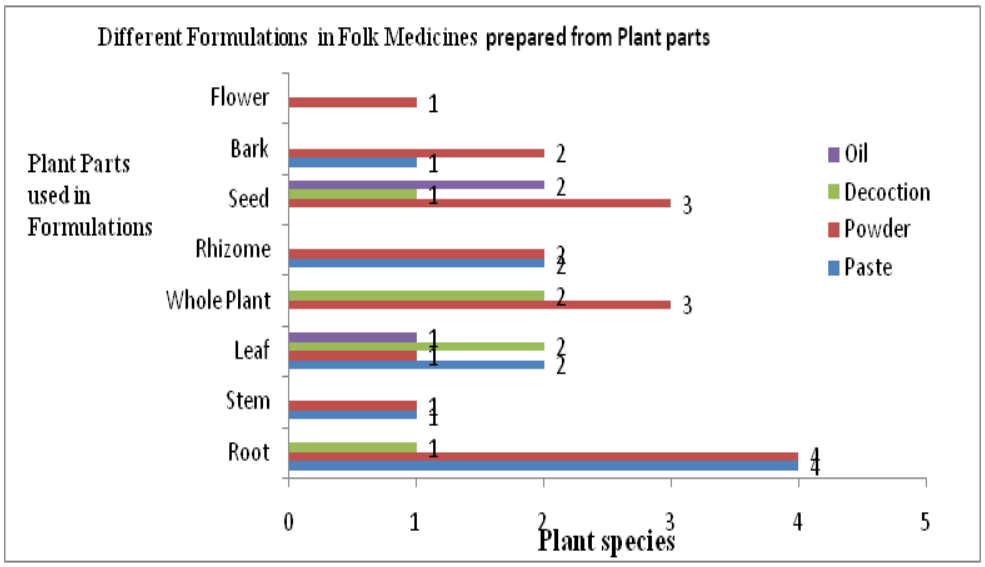

Figure 4 Different formulations in folk medicines prepared from plant parts.

Figure 5 Some of the promising plants used in folk-medicines in Madhya Pradesh.

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Figure 6 Documentation of folk medicines in Madhya Pradesh.

Conclusion

The indigenous knowledge system of herbal practice is still very rich and available among tribal community of Madhya Pradesh. The establishment of modern medicinal health centres is in progress in many rural areas that may gradually change the existing pattern of indigenous knowledge system of health care. Hence it is necessary to document the traditional knowledge of useful plants and their therapeutic uses before being lost forever from the community.

Recommendation

Plants documented in the study needs to be examined for phyto-chemical studies to know active principle component present in them which are beneficial in cure of ailments as recorded during study and presented. The investigation can lead to formulation of new drugs by pharmacological companies for benefit of mankind.

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Conflict of interest

Author declares that there is no conflict of interest.

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