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Medicinal plants used by tribal population of Anuppur district Madhya Pradesh, India

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Abstract
The present paper deals the traditional ethnomedicinal knowledge of different tribes of Anuppur district of Madhya Pradesh, India. With the help of standardized questionnaires, traditional healers and resource persons were interviewed on medicinal use of local flora in all the tribal villages of Anuppur district during July, 2014 to December, 2015 and some of the places were revisited for this purpose again during July to December of 2015. Total of 46 plant species belonging to 42 genera and 27 families were reported to be used for treating 33 various physical ailments. In terms of the number of medicinal plant species, Fabaceae (5 species) and Euphorbiaceae (4 species) are dominant families. Among different plant parts used for the preparation of medicine, leaves were most frequently used for the treatment of diseases.
In all tribal villages I found the use of medicinal plants, particularly to treat common physical problems like smaller injuries, stomachache and abdominal disorder. However, non-availability of such plants in close vicinity is imposing restriction on using medicinal plants. Further research on these species may lead to the discovery of novel bioactive molecules in one hand and also it may open up a new horizon of sustainable development.

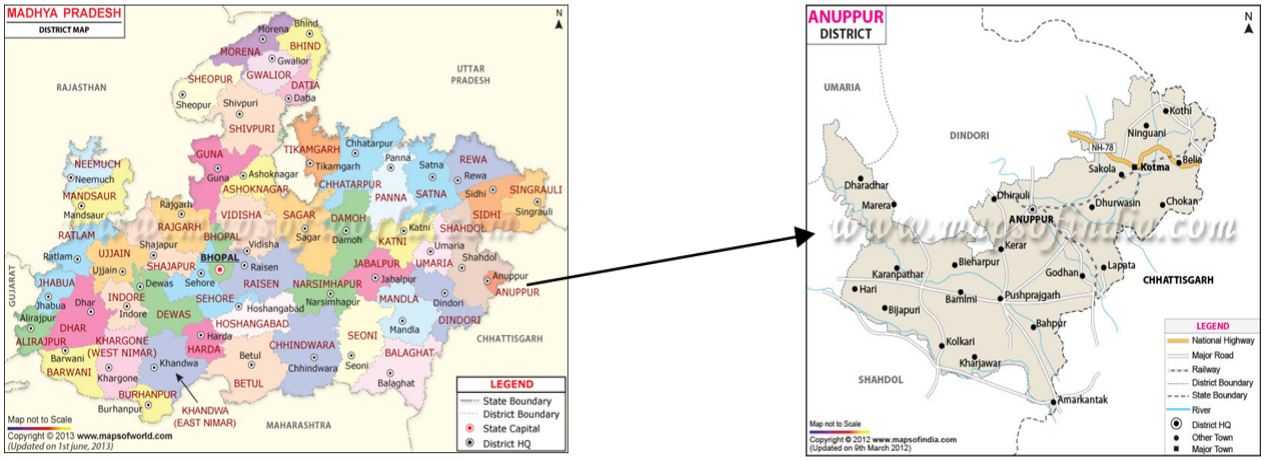
Keywords: Medicinal plants; Tribal population, Anuppur; Madhya Pradesh; India

1. Introduction
About 70% of Indian population inhabits in rural areas and many of them reside in the vicinity of forest and use various plant parts as food, medicines, and in many other purposes for their daily livelihood. Indian people are using medicinal plants from prehistoric period (Singh and Lahiri, 2010) [1]. Indigenous healing practices have been culturally accepted during all phases of human culture and environmental evolution. Traditional medicine is widely used and accounts for about 40% of all health care delivered (WHO, 2013) [2]. About 85% of traditional medicines are plant derived (Fransworth, 1988) [3]. Medicinal plants have a long-standing history in many indigenous communities, and are an integral part for treating various diseases, particularly to curve daily ailments and this practice of traditional medicine is based on hundreds of years of belief and observations. Almost every section of Indian population use plants as medicine and altogether about 7 500 species of plants are being used by several ethnic communities. Particularly, tribal people collect and preserve locally available wild and cultivated plant species and practice herbal medicine to treat a variety of diseases and disorders. With enormously diversified ethnic groups and rich biological resources, India represents one of the great emporia of ethnobotanical wealth (Kala, 2005) [4].
In developing countries, there is an increasing attempt to incorporate traditional medicines, especially herbal preparations in the local health care systems and many modern researchers are involved today to explore the huge potential of ethnobotanical knowledge for treating various diseases (Dutta and Dutta, 2005; Jain, *et al.* 2010, Jeyaprakash, *et al.* 2011) [5-7]. However, The ethnomedicinal plants are under threat due to deforestation, overgrazing and their reckless utilization. So, it indicates the urgent need of their conservation. Conservation of biological resources as well as their sustainable use is important in preservation of traditional knowledge (UNU-IAS, 2013, Bharti, 2015) [8, 18-19].
In spite of flurry of researches about use and status of medicinal plants in various parts of India, no such scientific documentation has been made in Anuppur district of Madhya Pradesh so far. So I designed this study to survey the use of medicinal plants among tribal

people of Anuppur district, as well as to check the recent status of the medicinal plants in this area through an intensive survey.

2. Material and Methods

Study area : The study site lies between 23°6'0" N Latitude and 81°41'1" E Longitude. Anuppur district situated in the north eastern part of Madhya Pradesh. This District came into existence on 15th August 2003 by reorganising Shahdol District. Anuppur District has total area of 3701 sq.km., extends 80 km from east to west and 70 km from north to south. District Anuppur is surrounded by Koria District (C.G.) in east, Shahdol & Umaria district in west. Shahdol district in north and Dindori (M.P.) Bilaspur (C.G.) in the south.



Map 1: Location map of Madhya Pradesh and study area of Anuppur district.

Data collection

A simple but very basic work plan was adopted for this survey work. At first various government departments like Forest Department, Department of Backward Classes, Panchayet Offices, *etc*. were approached for getting information about checklist of forest villages with relevant demographic information and to get detailed information about tribal population and tribal villages of the district. Relevant information was also collected from internet. On the basis of that information a plan of work was chalked out for our survey. Then extensive survey was conducted during the period of July, 2014 to December, 2015 and some of the places were revisited again during July to December of 2015. During field survey, detailed information on types, traditional method of preparation, mode of consumption, shelf life and ethnic value of the medicinal plants were collected from elderly persons and traditional healers of tribal communities. Information was collected through well-structured pretested questionnaires and discussions among the informants in their local language.

The plant specimens were collected as directed by the resource persons in flowering and fruiting conditions. Collected specimens were dried, chemically treated, and herbarium sheets were prepared for possible identification. Identifications were made using available literature (Prain, 1963 and Bhattacharyya, 1997) [9-10].

3. Results

In this study 46 plant species of 27 families (Table 1) were found to be used for medicinal purposes by various tribes of Anuppur district as reported by medicine men or traditional healers. Most of this knowledge was transmitted from one generation to next. The traditional medicine men are integral part of the community and take care of the common ailments of the folk in their home setting (Jain, 1981) [11]. The botanical name, family, local distribution, status and uses are tabulated as follows-

Table 1: Medicinal plants used by tribals of Anuppur district.

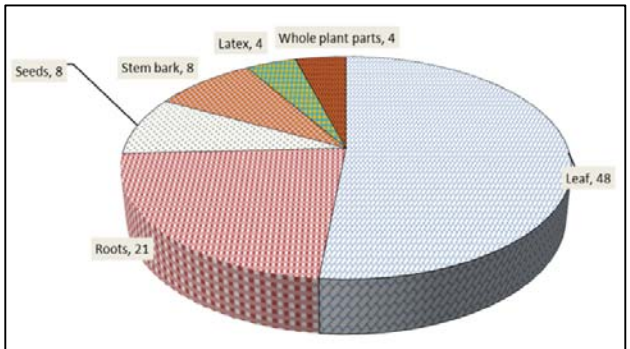
S. No.	Name	Family	Local distribution status	Uses
1.	*Amaranthus spinosus*	Amaranthaceae	Common wild	Leaves taken as vegetable to treat anemia; root paste applied on stomach to treat urinary disorder
2.	*Ageratum conyzoides*	Asteraceae	Common wild	Leaves used to treat cut
3.	*Alstonia scholaris*	Apocynaceae	Common wild	Bark extract used to treat intestinal worm; bark juice used to treat fever
4.	*Andrographis paniculata*	Acanthaceae	Commonly cultivated	Leaf extract to treat jaundice; dried leaf extract to treat body pain
5.	*Azadirachta indica*	Meliaceae	Common wild	Young twig used in cleaning teeth; leaf extract to treat liver ailment
6.	*Cajanus cajan* (=*indicus*)	Fabaceae	Commonly cultivated	Leaf decoction for jaundice; leaf extract to treat dysentery
7.	*Calotropis gigantea* L	Asclepiadaceae	Common wild	Leaves used to treat rheumatism
8.	*Calotropis procera*	Asclepiadaceae	Common wild	Leaves used to treat rheumatism and cuts; latex used in dog bite
9.	*Cassia occidentalis*	Fabaceae	Common wild	Root extract applied to treat snake bite
10.	*Centella asiatica*	Apiaceae (Umbelliferae)	Common wild	Leaf used to treat diarrhea and dysentery; leaf extract to treat eczema
11.	*Chenopodium album* L	Chenopodiaceae	Common wild and cultivated	Leaves used to treat intestinal worm

12.	*Cleome rutidosperma*	Cleomaceae	Common wild	Seeds used in menstrual problems
13.	*Coccinia grandis* (=*indica*)	Cucurbitaceae	Common wild	Leaves used to treat hypertension
14.	*Croton bonplandianum*	Euphorbiaceae	Common wild	Leaf extract used to treat cut and wounds
15.	*Curcuma longa*	Zingiberaceae	Commonly cultivated	Rhizome paste applied in cuts and wounds
16.	*Cyperus rotundus*	Cyperaceae	Common wild	Root extract used to treat cuts
17.	*Dalbergia sissoo* Roxb.	Fabaceae	Cultivated for timber	Leaf juice used to treat stomach disorder
18.	*Drymaria diandra*	Caryophyllaceae	Common wild	Dried leaves smoked to treat cough
19.	*Eclipta prostrata*	Asteraceae	Common wild	Leaf extract used to disinfect cut and wounds
20.	*Eupatorium odoratum*	Asteraceae	Common wild	Fresh leaf juice externally applied to cuts and wounds to stop bleeding
21.	*Euphorbia hirta*	Euphorbiaceae	Common wild	Leaves used to treat menstrual problems and extract used to stop irregular periods
22.	*Glycosmis arboroea* (=pentaphylla)	Fabaceae	Uncommon wild	Root powder used in fever, hepatopathy, eczema, skin diseases, to treat wounds and liver complaint
23.	*Gmelina arborea* Roxb.	Verbenaceae	Commonly cultivated for timber	Root extract used in stomach disorder
24.	*Heliotropium indicum*	Boraginaceae	Common wild	Juice of plant used to treat eye infection
25.	*Hibiscus rosa-sinensis* L	Malvaceae	Commonly cultivated	Leaves used to treat burning sensation, fatigue and skin diseases; root extract used to treat cough and fever
26.	*Hydrophila schulli* (Buch. Ham.)	Acanthaceae	Restricted wild	Leaf extract used to treat anemia
27.	*Jatropha curcas* L	Euphorbiaceae	Common wild and cultivated	Latex used to treat wounds and dysentery
28.	*Justicia adhatoda* L	Acanthaceae	Common wild and cultivated	Leaf juice taken for several days as expectorant to treat chronic bronchitis, cough and cold
29.	*Leucas plukenetii* syn. L. *aspera*	Labiatae	Common wild	Leaf juice used in jaundice
30.	*Ludwigia perennis*	Onagraceae	Common wild	Boiled plant extract used externally to reduce fever
31.	*Malvaviscus arboreus*	Malvaceae	Common cultivated	Flower buds are used to stop bleeding
32.	*Mangifera indica* L	Anacardiaceae	Common wild and cultivated	Bark used for the treatment of loose motion
33.	*Ocimum basilicum* L	Labiatae	Cultivated in marshy places	Seed paste applied against stings of wasps, bees and other venomous insects
34.	*Ocimum gratissimum*	Labiatae	Uncommon wild	Leaf extract applied on cut to stop bleeding
35.	*Plumbago zeylanica*	Plumbaginaceae	Uncommon cultivated	Root used to treat high fever; leaves used to treat cut
36.	*Psidium guajava*	Myrtaceae	Common	Bark used as contraceptive; young leaf used to treat stomach pain
37.	*Rauvolfia serpentina* (L) ex Kurz	Apocynaceae	Rare wild	Root extract used in stomach pain and to treat intestinal worm
38.	*Rauvolfia tetraphylla* L	Apocynaceae	Uncommon cultivated	Root extract used in stomach pain and to treat intestinal worm
39.	*Ricinus communis*	Euphorbiaceae	Common wild	Seed oil is used as pain killer
40.	*Scoparia dulcis*	Scrophulariaceae	Common wild	Leaf juice against stomach disorder
41.	*Sesamum indicum*	Pedaliaceae	Cultivated	Fried fruit taken in case of fever
42.	*Sesbania grandiflora*	Fabaceae	Cultivated	Extract of leaves used in jaundice
43.	*Sida acuta*	Malvaceae	Common wild	Root extract used against blood urea, boils and nephritis
44.	*Solanum indicum*	Solanaceae	Common wild	Seed applied on teeth and gum to treat infection
45.	*Stephania glandulifera*	Menispermaceae	Common wild	Root used in headache
46.	*Vitex negundo*	Verbenaceae	Common wild	Extract of leaves used against whitening of hair and memory loss, also to treat cancer

The reported plants were arranged according to their scientific name, family, vernacular names (as recorded during the field work), local status on availability, parts used, therapeutic uses and method of usage of herbal preparations. However, I was not able to collect information about method of usage of herbal preparations in all cases; because many of the traditional healers believe that upon disclosure of the knowledge (particularly to urban people) of the effect of medicine will diminish.

They use these forty six species of medicinal plants to treat 33 various types of physical ailments. Most of the plants reported in this study were collected from natural vegetation (72%) and few of them from home gardens (28%). Fabaceae is represented by the highest number of species (five species), followed by Euphorbiaceae (four species), Apocynaceae, Acanthaceae, Asteraceae, Malvaceae and Labiatae each comprising three species. Two families (Asclepiadaceae, and Verbenaceae) contained two species each and eighteen families represented by only one species.

Among different plant parts used for the preparation of medicine (Graph 1), leaves (48%) were found to be the most frequently used plant parts followed by roots (21%), seeds (8%), stem bark (8%), latex (4%), whole plant parts (4%), and only in one occasion each by tuber, fruit, flower and stem.



Graph.1 : **Percentage of plant parts used for the preparation of medicine by tribal people**

Most of the ethnobotanical studies confirmed that leaves are the major portion of the plant used in the treatment of diseases (Rajendran, *et al.* 2002; Mahishi, *et al.* 2005; Jagrap, *et al.* 2006; Ignacimuthu, *et al.* 2006 & 2008; Choudhury, *et al.* 2012) [12-17]. The methods of preparation fall into four categories, *viz.* plant parts applied as a paste, juice extracted from the fresh parts of the plant, and plants used to prepare decoction in combination with water and powder made from fresh or dried material.

4. Discussion

In every nook and corner of the Anuppur district plants are used as medicine. The herbal preparations made from the traditional medicinal plants were mostly used to treat cut and wounds, and stomachache and abdominal disorder (ten species each), for treatment of jaundice and liver problems (six species), and to treat intestinal worm, and fever (four species each). The study showed that a good number of the collected plants were used for the treatment of multiple diseases. *Glycosmis arboroea* (=*pentaphylla*) are used for the treatment of six diseases; *Hibiscus rosa-sinensis* L for the treatment of four diseases; *Sida acuta* and *Vitex negundo* are for the treatment of three diseases; and 14 other plants are used to treat two diseases.

Use of medicinal plants among tribals of Anuppur district in treatment of various diseases has definitely been out numbered today by the allopathic treatment. But still their dependence on plants of their surroundings to get relieved from day to day ailments is unquestionable. However, all persons, who are using plants as medicine, are complaining about the gradual fading out of many of the medicinal plants from their surroundings. It is presumable that availability of such plants in the vicinity may increase the use of plants as medicine. So possibilities of propagation and cultivation of these plants in this area should be explored to achieve the goal of sustainable development. Also further research on the medicinal plants mentioned in this study might provide some potential leads to fulfill the needs of search for bioactive compounds and the discovery of new drugs to fight diseases.

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