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## Weeds and their ethnobotanical of importance of Chhatarpur district (Madhya Pradesh)

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### Abstract

A list of 40 medicinally important plants distributed in 37 genera belonging to 25 families, eradicated due to intensive agricultural practices and considered as problem plants or declared weeds, that are occurred in the Chhatarpur district (M.P.) is presented. Its protection and sharing of benefits in human health care has been under debate at both the global and domestic level for decades. The purpose of this article is to provide an overview of the subject of weeds as a source of medicine, to create awareness about the protection and conservation of biological resources, sustainable use and to promote the social and economic welfare of the farming community.

**Keywords:** Ethnomedicine, indigenous knowledge, weeds, Chhatarpur district

### 1. Introductions

Human history on this planet will never be completed without a look at the role of plants. A complete record of many thousands of the plant species used by human being during past shows their importance in health, economy, shelter, clothing and food (Rizwana *et al.*, 2006) <sup>[1]</sup>. Regional floristic surveys are required to know the species range, floristic variability, economic value and assess the conservation status of community in any area (Sundriyal *et al.*, 2003; Chandra *et al.*, 2009) <sup>[2-3]</sup>. Over last two decades, the species area relations, environmental gradient, natural features, distribution pattern of the specific taxa and biogeographic region are considered the best criteria for declaring and management of the world forest (Diamond *et al.*, 1995) <sup>[4]</sup>. One of the most critical issues on the national and global agenda is need to preserve biodiversity for future generations while trying to understand and document the ethno medicinal knowledge of resource management practices (Nehal *et al.*, 2004) <sup>[5]</sup>.

Many scientists have combined this assumption with an ethnobotanical approach to natural medicinal plants discovery in order to maximize the successful development of pharmaceutical products (Dhar, *et al.*, 2002, Kadamban, *et al.*, 2003 and Subramaniam, 1999) <sup>[6-8]</sup>. Ethnobotanical surveys help the suitable source of information regarding useful plants and process of domestication which is a major evolutionary force bringing about different forms of plants through human selection (Casas, *et al.*, 1996) <sup>[9]</sup>. Among the conservative estimate of 250,000 flowering plants in the world, more than 8000 species are weeds (Heywood, 1993 and Holm, *et al.*, 1979) <sup>[10-11]</sup>. The weeds grow along with the crop plants (agro-ecosystems) and are regarded as nuisance for crops. But are the raw materials to the pharmaceutical industries as they yield chemicals used in formulation of various drugs, Vaidyas for preparing herbal formulations and an important source of medicines for indigenous peoples (Auti, *et al.*, 2004 and Oudhia, 1999) <sup>[12-13]</sup>. There are a number of reasons that the rural communities use weeds as medicine found in nearby areas (Jain, 2000) <sup>[14]</sup>. There is some evidence that the plants lose their effectiveness over time, must be used when freshly picked and effective when they grow in disturbed areas. Many weeds contain chemical compounds which are biologically active and potentially useful for medical science. There is also good biochemical evidence that supports the hypothesis that plants in disturbed areas are likely to have more chemicals in them for defense. Today intensive agricultural practices and environmental degradation of habitats in many agro-ecosystems could have an impact on availability of ethno botanically important plants. This may result in a conflict of interest regarding plant species that have a value to some communities but are regarded as undesirable by others. Further the introduction of large number of ruminants has resulted in overgrazing and reduction of vegetation in surrounding ecosystems.

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The study of medicinally important weeds has not been realized as fully as other traditional communities elsewhere such as wild plants in forest ecosystems which often exclude weed species (Lawrence, 1959 and Rosakutty, *et al.*, 1999) [8, 15-16]. In view of the rapid loss of diversity of plants, natural habitats, traditional community life, cultural diversity and knowledge of medicinal plants, documentation of medicinally important weeds is an urgent matter. Secondly, search for new medicines with low cost, more potential and without adverse side effect is needed to solve the major health problems. It helps to recognition in to popularization of economic importance of plants (Roy, *et al.*, 1992) [17], upgrading herbal medical practices, conservation of indigenous knowledge and medicinally important plants.

**2. Materials and Methods**

**2.1 Description of study area**

The ethnobotanical study was conducted in the Chhatarpur district of the M.P. state of India during the year 2018-2019. Chhatarpur district located at 24.06° & 25.20° N 78.59° & 80.26° E respectively. The district has an area of 8,687 km<sup>2</sup>. Chhatarpur District is bounded by Uttar Pradesh state to the north, and the Madhya Pradesh districts of Panna to the east, Damoh to the south, Sagar to the southwest, and Tikamgarh to the west. Chhatarpur District is part of Sagar Division. The district has extensive forests. About 42% of the total area is covered by forests only. The District is rich in minerals. The most important mineral found in the district is coal and as a result 8 mines are being operated by South Eastern Coalfield Limited in the district. Forest covered 76500 Hecters. The minor growing season starts from August – October and the major growing season is November – February, followed by a long dry season from March-July. The aborigines of the area are mostly farmers and daily wage groups.

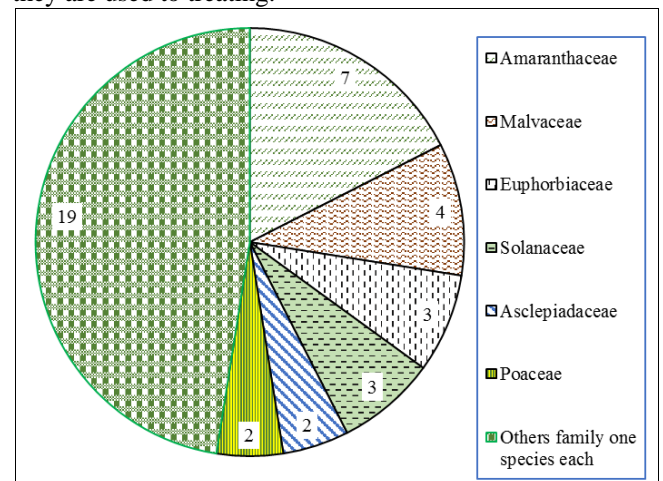
species included in this study is “a plant... if, in any specified geographical area, its populations grow entirely or predominantly in situations markedly disturbed by men, without, of course, being a deliberately cultivated plant” (Baker, 1965) [19]. All weed species were collected in the field by means of field interview (Alexiades, 1996) [20] with semi structured questionnaires. Informants were asked to guide as to the places where these weeds grew or to bring the drug they use. Each interviewee was shown plant specimens collected and the medicinal property of each species was accepted as valid if at least twenty five percent informants had a similar opinion. Additional discussions were conducted with the traditional healers including herbalists and diviners. A sample of each medicinally important weed identified was preserved systematically (Jain, *et al.*, 1977) [21] in the herbarium of Botany Department, Govt. Girls P.G. College, Rewa (M.P.) for their further reference. Finally, additional information’s regarding plant uses as medicine was noted and confirmed with the help of available literatures (Harsha, *et al.*, 2003, Kirtikar and Basu, 1916(1935), Jain, 1991, Rastogi and Mehrotra, 1991 and Arjariya and Chaurasia, 2008) [22-26].

**3. Result and Discussion**

The present investigation comprises 40 species of ethnomedicinally important weedy plants distributed in 37 genera belonging to 25 families (Table 1 & Fig. 2). Amaranthaceae was the most dominant family with seven species, followed by Malvaceae (4 species); Euphorbiaceae and Solanaceae (3 species); Asclepiadaceae and Poaceae (2 species); Acanthaceae; Asteraceae; Boraginaceae; Caesalpinioideae; Commelinaceae; Convolvulaceae; Cucurbitaceae; Cyperaceae; Fabaceae; Fumariaceae; Geraniaceae; Labiaceae; Labiatae; Lamiaceae; Liliaceae; Mimosaceae; Papaveraceae; Pedaliaceae and Rubiaceae (1 species). *Alternanthera sessilis*, *Commelina benghalensis*, *Eclipta alba*, *Oxalis corniculata*, *Phyllanthus niruri*, *Solanum nigrum* and *Solanum trilobatum* are the most commonly used medicinally important plants in the inhabitants of Chhatarpur district (M.P.). This may be connected the fact that the popularity of the ailments that they are used to treating.



**Fig 1:** Location map of the Chhatarpur district



**Fig 2:** Family wise analysis of documented plants

A species was considered to be a weed if it was included in the standard reference for weeds worldwide based on a global literature search (Holm, *et al.*, 1979, Roy, *et al.*, 1992 and Duke, 2001) [11, 17-18]. A weed that corresponds to those

The direct use of popular medicinal plants as ailment is now very low for many inhabitants. They don't grow medicinally important plants in their gardens and collect these from their surrounding environments rather than buy, because these

plants are used as an unexpected ailment. The weeds in agroecosystems are mostly annuals, they do not grow in the expected season and the people do not have the expertise or enough knowledge to the importance of these plants. The knowledge of these plants is passed from one generation to another verbally and through experience. Now the younger generations are not interested in agricultural activities and do not popular with traditional practices. The use of medicinally important plants is at a very low level due to lack of remunerative prices and market linkages. These are the factors encountered for lack of popularity as a raw material in the traditional human health care system.

Common health problems in the sites of the study area were external problems such as burns, cuts and wounds, cough, fever, headache, poison bites and skin diseases and the largest number of medicinally important weeds was used to treat these troubles. Common ailments such as headaches or coughs are considered to be diseases with natural causes and hence their symptoms are treated at the household level (Busia, 2005, Natarajan and Paulsen, 2000, Oudhia, 2001 and Immanuel and Elizabeth, 2009) [27-30]. In the present study nine remedies (*Abrus precatorius*, *Aerva lanata* and *Leucas aspera*) were used to get relief from headache. *Andrographis paniculata*, *Coccinia cordifolia*, and *Solanum trilobatum* are used to treat diabetes by the local traditional healers of this location. *Aerva lanta* and *Phyllanthus niruri* are the recorded other plants used to cure diabetes. Many traditional plant treatments for diabetes are used throughout

the world and there is an increasing demand by patients to use the natural products with anti-diabetic activity (Chhetri, *et al.*, 2005) [31].

In this locality "Jaundice" (Yellow Fever) is considered as very serious disease. The most of the inhabitants and local traditional practitioners used *Phyllanthus niruri* and or its combinations as an ailment to cure jaundice rather than other pharmaceuticals. But the literatures show that more than ten species of locally available plants (*Andrographis paniculata*, *Argemone mexicana*, *Eclipta alba*, *Imperata cylindrica*, *Leucas aspera*, *Mimosa pudica*, and *Solanum nigrum*) are used traditionally to cure jaundice (Kadamban, *et al.*, 2003, Auti, *et al.*, 2004 and Samvatsar and Diwanji, 2000) [7, 12, 32]. The plants such as *Abrus precatorius*, *Anisomeles malabarica*, *Calotropis gigantean*, *Gloriosa superba*, *Eclipta alba*, *Leucas aspera*, *Mimosa pudica* and *Sida cordifolia* were still used by tribes and traditional healers as remedy for snake and poisonous bites (Maikhuri, *et al.*, 1998 and Yadav and Patil, 2001) [33-34].

Several recent studies have proved the weedy plants contain many medically useful active principles (alkaloids, glycosides, polyphenolics, steroids, tannins, resins, flavonoids, tetraploids and fatty acids) that are able to cure many nutritional disorders and diseases (Horsten, *et al.*, 1996, Musa, *et al.*, 2006, Sahoo, *et al.*, 2006 and Sharma and Khandelwal, 2010) [35-38] in the human health care system.

**Table 1:** List of medicinally important weed flora present in the agroecosystem of Chhatrapur district

S. No.	Botanical name	Family name	Vernacular name (Hindi)	HBN	Therapeutics
1.	<i>Andrographis paniculata</i> Nees	Acanthaceae	Kalmegh	Saba18	Asthma, cough, diabetics, fever, jaundice, stomach ulcer
2.	<i>Achyranthes aspera</i> L.	Amaranthaceae	Chirchita	Saba62	Bleeding piles, bronchitis, cough, dropsy, diuretic, dysentery, dyspepsia, skin diseases, toothache, urinary concretions, vomiting
3.	<i>Aerva lanata</i> (L.) A. L. Juss. ex Schultes	Amaranthaceae	Gorakhbuti or Kapuri jadi,	Saba11	Gonorrhea, headache, kidney disorders, sugar in urine, dissolves the stone and to clear the urinary path.
4.	<i>Alternanthera sessilis</i> (L.) R.Br. ex Roem. & Schultz	Amaranthaceae	Garundi, Guroo	Saba2	Body pain, eye disorders, nutritional disorders, piles, stomachache.
5.	<i>Amaranthus spinosus</i> L.	Amaranthaceae	kanta chaulai	Saba64	Colic, eczema, gonorrhoea, menorrhagia
6.	<i>Amaranthus viridis</i> L.	Amaranthaceae	Jungali Chaulayi	Saba15	Kuppaikeerai
7.	<i>Aerva lanta</i> Juss.	Amaranthaceae	Chhaya	Saba33	Cough, diabetes, sore throat, wounds.
8.	<i>Digeria arvensis</i> Forsk.	Amaranthaceae	Chanchali	Saba44	Urinary discharge troubles.
9.	<i>Calotropis gigantea</i> R. Br	Asclepiadaceae	Safed aak	Saba37	Antiseptic, cholera, gonorrhea, haemorrhoids, snake bite, Alterative, blood purifier, chronic rheumatism, demulcent, diaphoretic, diuretic, nutritional disorders, syphilis, tonic, urinary diseases skin affections
10.	<i>Hemidesmus indicus</i> R. Br	Asclepiadaceae	Anantmool	Saba71	Antiseptic for ulcers, emetic, jaundice, nerves problems, purgative, tonic, snakebite.
11.	<i>Eclipta alba</i> (L.) Hassk.	Asteraceae	Bhringaraj	Saba20	Fractured bone, eczema, sore styptic.
12.	<i>Heliotropium indicum</i> L.	Boraginaceae	Hatta-juri	Saba6	Jaundice, scabies, worm control.
13.	<i>Cassia auriculata</i> L.	Caesalpinioideae	Tarwar	Saba144	Burns, boils, laxative, leprosy, nervous disorders, swellings.
14.	<i>Commelina benghalensis</i> L.	Commelinaceae	Kankaua	Saba23	Stomach complaints,
15.	<i>Ipomoea obscura</i> (L.) Ker Gawl.	Convolvulaceae	Pan-bel	Saba107	Diabetes, itching
16.	<i>Coccinia cordifolia</i> (L.) Cong	Cucurbitaceae	Kundru	Saba4	Abscesses, cholera, cough, diarrhoea, erysipelas, epilepsy, fever, wounds.
17.	<i>Cyperus rotundus</i> L.	Cyperaceae	Nagarmotha	Saba132	Asthma, bronchitis, bed sores, earache, headache, pneumonia, rheumatism, scabies, ulcers, wounds, tape worm, ringworm
18.	<i>Abrus precatorius</i> L.	Euphorbiaceae	Gunchi	Saba186	Asthma, boils, bronchitis, cough, colic troubles, enriches the blood, laxative, piles, swellings, vomiting.
19.	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Bara dhudhi	Saba8	Jaundice, diabetes, urinary infections, intermittent fever.
20.	<i>Phyllanthus niruri</i> L.	Euphorbiaceae	Bhumi amla	Saba208	Cure scable, detoxicant.
21.	<i>Crotalaria verrucosa</i> L.	Fabaceae	Banshan	Saba135	



22.	<i>Fumaria indica</i> (Hauskn.) Pugsley	Fumariaceae	Papara	Saba85	Dyspepsia, eczema, laxative, wounds.
23.	<i>Oxalis corniculata</i> L.	Geraniaceae	Amrul	Saba284	Cooling effect, dysentery, diarrhea, Stomach troubles.
24.	<i>Ocimum canum</i> L.	Labiaceae	Ajgandha	Saba61	Cough, diuretic, fever.
25.	<i>Leucas aspera</i> (Willd.) Spreng.	Labiatae	Chhota halkusa	Saba29	Digestion, fever, head ache, jaundice, snakebite, stomach disease.
26.	<i>Anisomeles malabarica</i> (L.) R. Br. ex Sims	Lamiaceae	Gopoli	Saba406	Colic, dyspepsia, fever, rheumatism, snake bite, scorpion sting
27.	<i>Gloriosa superba</i> L.	Liliaceae	Bachnag	Saba86	Asthma, fever, leucorrhoea, piles, sensation, snake bite
28.	<i>Abutilon indicum</i> (L.) Sweet.	Malvaceae	Kanghi	Saba412	Dyspepsia, cough, leucorrhoea, piles, tuberculosis. toothache, stomachache
29.	<i>Pavonia odorata</i> Willd	Malvaceae	Sugandabala	Saba95	Astringent, dysentery, enterorrhagia, fever, inflammation, refrigerant.
30.	<i>Sida acuta</i> (Burn. F)	Malvaceae	Kareta/ Kharenti	Saba403	Demulcent, diuretic, hemorrhoids, stomachache.
31.	<i>Sida cordifolia</i> L.(Burn.F) Borss	Malvaceae	Kharinta	Saba51	Astringent, anti-rheumatic, gonorrhoea, leucorrhoea, heal cuts, nervous disorders, snake bite, scorpion sting, and wounds.
32.	<i>Mimosa pudica</i> L	Mimosaceae	Lajwanti, Chui-mui	Saba81	Asthma, Dysentery, fever, haemorrhoids, leucoderma, jaundice, pistula, Seminal weakness, snake poisoning, ulcers, wounds
33.	<i>Argemone mexicana</i> L	Papaveraceae	Phirangi dhatura	Saba266	Boils, dropsy, eczema, leprosy, jaundice, itches, spermatorrhoea, ulcers
34.	<i>Pedaliium murex</i> L.	Pedaliaceae	Bara Gokhru	Saba73	Aphrodisiac, diuretic, heal wound, urinary tract infection
35.	<i>Dactyloctenium aegyptium</i> (L.) Beauv.	Poaceae	Makra	Saba68	Antipyretic
36.	<i>Imperata cylindrica</i> (L.) Beauv	Poaceae	Daabha	Saba41	Antipyretic, diuretic, hypertension, jaundice, wounds
37.	<i>Borreria articularis</i> L willd	Rubiaceae	Madanaghanti	Saba46	Dysentery, diarrhoea, gall stones, haemorrhoids.
38.	<i>Datura matel</i> L.	Solanaceae	Safed dhatura	Saba432	Antispasmodic, insanity.
39.	<i>Solanum nigrum</i> L	Solanaceae	Mokoi	Saba87	Jaundice, cough, piles, skin diseases, ulcer
40.	<i>Solanum trilobatum</i> L.	Solanaceae	Alarka	Saba426	Cough, diabetes, nutritional disorders, and ulcer.

#### 4. Conclusion

This study shows that certain types of weeds are used by local people, but they do not know the value of all the plants in their agricultural system. Therefore, important medicinal species are easily discarded by the agricultural community. These weeds can be an additional source of income for farmers, if they are informed of the therapeutic value of weed control. However, there is a possibility that this wealth of knowledge will soon be eradicated very quickly due to the small interest in the new generation to protect the environment and their tendency to move to cities for profitable jobs. Therefore, it is necessary to identify varieties, relevant documents, and awareness programs and introduce value-added activities related to the processing of essential medicinal plants by public enterprises that are carefully designed to serve the needs of the community and are effectively introduced to younger generations. This can make a significant contribution to improving confidence in basic health care for the people and provide additional funding for health and preventing the loss of our indigenous plants and heritage.

Information regarding the use of reported crops is collected and evaluated by published documents and the farming community. However, the therapeutic properties and functional principles of these plants should be scientifically standardized and tested for their safe use.

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