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) [1]. 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) [2-3]. 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) [4]. 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) [5].

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) [6-8]. 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) [9]. 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) [10-11]. 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) [12-13]. There are a number of reasons that the rural communities use weeds as medicine found in nearby areas (Jain, 2000) [14]. 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.
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 km². Chhatarpur District is bounded by 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 – November and the major growing season is December – February, followed by a long dry season from March-July. The aborigines of the area are mostly farmers and daily wage groups.

![Fig 1: Location map of the Chhatarpur district](image)

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 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). Amarantaceae was the most dominant family with seven species, followed by Malvaceae (4 species); Euphorbiaceae and Solanaceae (3 species); Asclepiadaceae and Poaceae (2 species); Acanthaceae; Asteraeaceae; Boraginaceae; Caesalpinioideae; Commelinaceae; Convolvulaceae; Cucurbitaceae; Cyperaceae; Fabaceae; Fumariaceae; Geraniaceae; Labiaceae; 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 2: Family wise analysis of documented plants](image)

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 annually, 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 (Abras precarios, 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, Arjegome mexicana, Eclipta alba, Imperata cylindrica, Leucas aspera, Mimoso 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 precarios, Anisomeles malabarica, Calotropis gigantean, Gloriosa superba, Eclipta alba, Leucas aspera, Mimoso pudica and Sida cordifolia were still used by tribes and traditional healers as remedy for snake and poisonous bites (Makhuri, 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 Chhatapur district

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Botanical name (Hindi)</th>
<th>Family name</th>
<th>Vernacular name (Hindi)</th>
<th>HBN</th>
<th>Therapeutics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Andrographis paniculata Nees</td>
<td>Acanthaceae</td>
<td>Kalmegh</td>
<td>Saba18</td>
<td>Asthma, cough, diabetics, fever, jaundice, stomach ulcers</td>
</tr>
<tr>
<td>2.</td>
<td>Achyranthes aspera L.</td>
<td>Acanthaceae</td>
<td>Chirchita</td>
<td>Saba62</td>
<td>Bleeding piles, bronchitis, cough, dropsy, diuretic, dysentery, dyspepsia, skin diseases, toothache, urinary concretions, vomiting</td>
</tr>
<tr>
<td>3.</td>
<td>Aerva lanata (L.) A. L. Juss. ex Schultes</td>
<td>Acanthaceae</td>
<td>Gorakhbuti or Kapuri jadi</td>
<td>Saba11</td>
<td>Gonorrhea, headache, kidney disorders, sugar in urine, dissolves the stone and to clear the urinary path.</td>
</tr>
<tr>
<td>4.</td>
<td>Alternanthera sessilis (L.) R. Br. ex Roem. &amp; Schultz.</td>
<td>Acanthaceae</td>
<td>Garundi, Gueroo</td>
<td>Saba2</td>
<td>Body pain, eye disorders, nutritional disorders, piles, stomachache</td>
</tr>
<tr>
<td>5.</td>
<td>Amanthus spinosus L.</td>
<td>Acanthaceae</td>
<td>kanta chaualai</td>
<td>Saba64</td>
<td>Colic, eczema, gonorrhoea, menorrhagia</td>
</tr>
<tr>
<td>6.</td>
<td>Amanthus viridis L.</td>
<td>Acanthaceae</td>
<td>Jungali Chaulayi</td>
<td>Saba15</td>
<td>Kuppikeerai</td>
</tr>
<tr>
<td>9.</td>
<td>Calotropis gigantea R. Br</td>
<td>Astepliaceae</td>
<td>Safed aak</td>
<td>Saba37</td>
<td>Antiseptic, cholera, gonorrhoea, haemorrhoids, snake bite,</td>
</tr>
<tr>
<td>10.</td>
<td>Gymnema siamense</td>
<td>Astepliaceae</td>
<td>Anantmool</td>
<td>Saba71</td>
<td>Alterative, blood purifier, chronic rheumatism, demulcent, diaphoretic, diuretic, nutritional disorders, syphilis, tonic, urinary diseases skin affections</td>
</tr>
<tr>
<td>12.</td>
<td>Heliotrion indicum L.</td>
<td>Boragineae</td>
<td>Hatta-juri</td>
<td>Saba6</td>
<td>Fractured bone, eczema, sore styeptic,</td>
</tr>
<tr>
<td>13.</td>
<td>Cassia auriculata</td>
<td>Caesalpinioideae</td>
<td>Tarwar</td>
<td>Saba14</td>
<td>Jaundice, scabies, worm control.</td>
</tr>
<tr>
<td>15.</td>
<td>Ipomoea obscura (L.) Ker Gawl.</td>
<td>Convolvulaceae</td>
<td>Pan-bel</td>
<td>Saba107</td>
<td>Stomach complaints,</td>
</tr>
<tr>
<td>16.</td>
<td>Coccinia cordifolia (L.) R. Br.</td>
<td>Cucubitaceae</td>
<td>Kundru</td>
<td>Saba4</td>
<td>Diabetes, itching</td>
</tr>
<tr>
<td>17.</td>
<td>Cyperus rotundus L.</td>
<td>Cyperaceae</td>
<td>Nagarmotha</td>
<td>Saba132</td>
<td>Abscesses, cholera, cough, diarrhoea, erysipelas, epilepsy, fever, wounds.</td>
</tr>
<tr>
<td>18.</td>
<td>Abrus precariosis L.</td>
<td>Euphorbiaceae</td>
<td>Gunchi</td>
<td>Saba186</td>
<td>Asthma, bronchitis, bed sores, earache, headache, pneumonia, rheumatism, scabies, ulcers, wounds, tape worm, ringworm</td>
</tr>
<tr>
<td>19.</td>
<td>Euphorbia hirta L.</td>
<td>Euphorbiaceae</td>
<td>Bara dhadhi</td>
<td>Saba8</td>
<td>Asthma, boils, bronchitis, cough, colic troubles, enriches the blood, laxative, piles, swellings, vomiting.</td>
</tr>
<tr>
<td>21.</td>
<td>Crotolaria verrucosa L</td>
<td>Fabaceae</td>
<td>Banshan</td>
<td>Saba135</td>
<td>Cure scable, detoxicant.</td>
</tr>
</tbody>
</table>
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 eroded 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 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.

5. Acknowledgement
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6. References


