Medicinal importance of underground plant parts from Fatehpur district, Uttar Pradesh, India

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Abstract
Medico botanical investigation on underground plant parts utilised by the inhabitants for their health care in Fatehpur district of Uttar Pradesh, India was conducted. A total of 15 plant species distributed to 13 families are documented for their therapeutic uses. Most of the species are in local distribution and few species were cultivated in gardens. The study revealed that the area is rich in indigenous knowledge about the medicinal uses of plants. However, it is getting eroded rapidly due to modern cultural changes.

Key-Words: Medicinal uses, Underground parts, Fatehpur, U.P.

Introduction
Human life has directly or indirectly been associated with and affected by their environment. Human beings and plants share an age old relationship. Primitive man directly depended on nature (plants) not only for food but also for fodder, fuel and medicine. Curative properties of plants in India has been documented in ancient manuscripts because they are essential for human survival (Shastri and Chaturvedi, 1996). The reference to the potential of plants and herbs to cure human ailments and diseases in Rig Veda seems to be the earliest records. The Rich and diversified flora of India provides a valuable store house of medicinal plants. Many of today’s drugs have been derived from plant sources. Over 400 tribal and other ethnic groups in India constitute about 7.5% of India’s population. Besides them, forest dwellers and rural people also possess unique knowledge about plants (Jain, 1991). This traditional knowledge is handed down to generations orally and is extensively used for the treatment of common ailments. Some such tradition has still remaining among urban society. In recent past, attention has been paid on various aspects of ethno medicinal botany in Uttar Pradesh, where some areas bear very rich medicinal flora (Saxena and Vyas, 1981; Singh and Maheswari, 1983; Singh et al., 1987; Siddique and Husain, 1994; Khanna, 2002; Singh et al., 2002; Maliya, 2004; Jyotsana et al., 2010; Kapoor, 2010; Nigam and Sharma, 2010; Tiwari and Pandey, 2010; Chaudhary et al., 2011; Dar Bilal, 2011; Verma and Sharma, 2011; Kumar and Kumar, 2012; Semwal et al., 2012).

But, a limited work on ethnobotanical information of underground plant parts has been carried out in India by Swarnkar and Katewa (2008) in Rajasthan; Mall (2009) in North Central Tarai Forests of U.P. and Jyoti et al. (2011) in Andhra Pradesh. Therefore, present investigation has been taken in hand to document the medicinal importance of underground plant parts from district Fatehpur, U.P., India. The underground plant parts are generally storage organs below the soil surface. These organs may be a true bulb, corn, tuber, tuberous roots, rhizome or stolon. These parts have dual significance, firstly they can be used as food and secondly these have medicinal value. Carbohydrate and nutrient reserve are stored in these plant parts to support the growth of plant after the environmental stress.

Study area
Study area lies 122 km. south east from capital Lucknow of U.P. To its north is River Ganges-District Unnao and Rae-Bareli; River Yamuna in south with district Hamirpur and Banda; Kanpur in west and Kaushambi and Allahabad in east. It covers total area of 4152 sq km. between 26.16 North latitude and 81.20 East longitudes at an elevation of 114.66 mt. above sea level. Climate is sub tropical. Seasonal variations is well marked with three seasons in the year – summer (March to June), rainy (July to September) and winter (October to February). It resembles the climate of Bundelkhand in south region and Awadh in north.

Methodology
Survey was conducted on different areas of the district. Collected plants were identified with the help of available literature (Duthie, 1960; Hooker, 1973). Informations were collected through interview and...
discussion with local inhabitants. Medicinal uses of collected plants were then crosschecked from relevant literature available (Nadkarni, 1908; Kirtikar and Basu, 1933, Chopra et al.1956; Dastur, 1962, Jain,1991).

Results and Discussion
In the present study, 15 plant species belonging to 13 families (7 dicots and 6 monocots) were commonly used by natives of Fatehpur, Most of the species were cultivated in local places including home gardens. The data on botanical name, family, local name, plant parts used and their ethno-food and ethno-medicinal uses are tabulated in Table-1. The study concluded that despite dense urbanization, underground plant parts still play a key role in human health care and the local people of the district have preserved large bulk of knowledge on use of underground parts supporting the findings of Swarnkar and Katewa(2008); Mall(2009) and Jyoti et. al.(2011). The traditional medicinal practice is alive well due to belief in its effectiveness, little/no side effects and its cost effectiveness. However, this knowledge bank is vanishing fast as the current generation is not showing the same response as shown by the past generations. A generation gap is developed between generations due to change in family structure from joint to nuclear with change of life style. Another reason is lack of belief of young generation in traditional medicine system and increasing use of allopathic medicine due to their availability and efficacy. Therefore, documenting indigenous knowledge through ethnomedicinal studies is in dire need for conservation and utilization of natural resources from the area before inhabitants shift over to modern life style.

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References

Table 1: Medicinal Uses of underground plant parts

<table>
<thead>
<tr>
<th>Botanical name</th>
<th>Local name</th>
<th>Family</th>
<th>Parts used</th>
<th>Medicinal uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Allium cepa L.</td>
<td>Pyaz</td>
<td>Amaryllidaceae</td>
<td>Bulb</td>
<td>Largely eaten as vegetable. Stimulant, diuretic, good for dysentery and flatulence.</td>
</tr>
<tr>
<td>2. Allium sativum L.</td>
<td>Lahsun</td>
<td>Amaryllidaceae</td>
<td>Bulb</td>
<td>Bulbs eaten as a flavouring agent for vegetables. Cooked in mustard oil for massage in joint pains and inflammation. Power up immune system, cleans blood, as antibiotic and antifungal.</td>
</tr>
<tr>
<td>3. Arachis hypogea L.</td>
<td>Moongphali</td>
<td>Papilionaceae</td>
<td>Under ground pod(see ds)</td>
<td>Eaten raw or boiled or roasted, high in protein and magnesium, contribute to brain health and blood flow. Oil with monosaturated content good for health.</td>
</tr>
<tr>
<td>4. Asparagus racemosus L.</td>
<td>Satawar</td>
<td>Liliaceae</td>
<td>Root tubers</td>
<td>Given in form of juice and powder for increasing lactation in nursing mother. Bleeding from nose, blood in urine, anthelmintic, in cutaneous diseases, diarrhoea and dysentery, rheumatism.</td>
</tr>
<tr>
<td>5. Beta vulgaris L.</td>
<td>Chukande r</td>
<td>Chenopodiaceae</td>
<td>Root</td>
<td>Beet juice is very nourishing and recommended for anemia. Eaten raw as salad.</td>
</tr>
<tr>
<td>6. Canna indica L.</td>
<td>Keli</td>
<td>Cannaceae</td>
<td>Tuberos root</td>
<td>Young tubers eaten cooked. Contains starch used as arrowroot in thickening of puddings. Grown as</td>
</tr>
<tr>
<td>No.</td>
<td>Scientific Name</td>
<td>Common Name</td>
<td>Family</td>
<td>Part</td>
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<tr>
<td>7.</td>
<td>Colocasia esculenta (L.) Schott.</td>
<td>Arvi</td>
<td>Araceae</td>
<td>Corm (stem)</td>
</tr>
<tr>
<td>9.</td>
<td>Curcuma longa L.</td>
<td>Haldi</td>
<td>Zingiberaceae</td>
<td>Rhizome</td>
</tr>
<tr>
<td>10.</td>
<td>Daucus carota L.</td>
<td>Gajar</td>
<td>Apiaceae</td>
<td>Root</td>
</tr>
<tr>
<td>11.</td>
<td>Ipomea batatas (L.) Lam.</td>
<td>Sakar kandi</td>
<td>Convolvulaceae</td>
<td>Tuberous root</td>
</tr>
<tr>
<td>13.</td>
<td>Raphanus sativus L.</td>
<td>Mooli</td>
<td>Cruciferae</td>
<td>Tuberous root</td>
</tr>
<tr>
<td>14.</td>
<td>Solanum tuberosum L.</td>
<td>Aloo</td>
<td>Solanaceae</td>
<td>Tuber</td>
</tr>
<tr>
<td>15.</td>
<td>Zingiber officinale Rose.</td>
<td>Adrakh</td>
<td>Zingiberaceae</td>
<td>Rhizome</td>
</tr>
</tbody>
</table>