Ethno-medicinal Active Plants for Treating Cold and Cough in the Vicinity of Nahargarh Wildlife Sanctuary, Jaipur, India

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Received: 09.06.2010, Accepted: 29.10.2010

Abstract
The present investigation is an attempt to enumerate the ethno-medicinal plants distributed in Nahargarh Wildlife Sanctuary, Jaipur, India. Traditional medicinal knowledge on 29 plant species has been documented which have the active principles for the treatment of cold and cough. A field survey of the study area was carried out to describe for the utility of these plants. Different parts of plant (roots, stem, leaves, bark, fruits, seeds, bulb, etc.) or the whole plant/herb is used as medicinal purpose for various ailments. Short diagnostic description, systematic position and local/tribal names of plants are described.

Key words: Nahargarh wildlife sanctuary, ethnomedicinal plants, systematic position, ailments

Introduction
Ethnobiology came into being when the earliest man observed the animals mostly the apes and monkeys eating certain plants and found heal his wounds and get rid from pain and suffering. An analysis of such observations provoked them to use of plants for maintenance of life and alleviation of diseases (Sinha, 1999). Despite of new advances in medicine, the cultural use of plant in traditional medicine continues from ancient time to this day all over the world (Bhattarai et al., 2009). World Health Organization has estimated that 80% of the people in the world rely on traditional medicines for primary health care needs (Fransworth, 1990). It was also realized that till now only 5% of the herbal wealth was studied whereas the rest remained unexplored (Arya et al., 2008). India is one of the world’s 12 biodiversity centers with presence of over 45000 different plant species. Of these, about 15000-20000 plants have good medicinal value. However, only 7000-7500 species are used for their medicinal values by traditional communities (Subbu and Prabha, 2009). Medicinal plants are gaining popularity because of several perceived advantages, such as fewer side effects, and better patient compliance (Brown et al., 2008). Today the medicinal world is posed with complex challenges. Thus time demand an integrated and pluralistic approach towards health care to cope effectively with his situation (Sen and Batra, 2008). Establishment of herbal forms in well selected localities will exercise scientific control over the cultivation of
medicinal herbs (Kritikar and Basu, 1987). In every ethnic group there exists a traditional health care system, which prevalent and popular among community (Rai, 2007). The conservation and protection of medicinal plants against over exploitation by domestic and foreign commercial interest without benefits accruing to the nation are clearly our priorities (Natesh and Mohan Ram, 1999).

The vegetation of Nahargarh Wildlife Sanctuary is varied, depending upon the climate and edaphic factors and it has impressive medicinal flora and large numbers of plants have been considered as important therapeutic aid for alleviating ailments of human kinds. These plants are being used in the vicinity of sanctuary by various tribal communities in traditional medicines for hundreds of years. The present study emphasizes on both the use as well as the conservational aspect of medicinal plants of sanctuary, because in the wake of their bioprospecting and uses as herbal medicines, they have badly exploited resulting into serious genetic erosion of their species.

Materials and methods
Nahargarh Wildlife Sanctuary is a small sanctuary and situated at Northeastern part of Aravalli hills and Northern outskirt of Jaipur city. It is confined between 26°15′ to 28°45′N and 75°45′ to 77°05′E. The Aravalli ranges (oldest hills of the World) traverse through sanctuary and the forest type is subsidiary edaphic type of dry tropical thorne forest.

Intensive exploration trips were conducted to document the ethno-medicinal plants of sanctuary. Field trips were made twice a week in the beginning and once in the week later during the period of January, 2008 to January, 2010. The information was gathered by direct field observations and interviews with knowledgeable villagers, folk healers and other practitioners in traditional medicines. During the periodic visits, a number of plants were located and attempt was made to find out their local/scientific names, family and ethnobotanical distributions. The collected specimens were identified taxonomically with the help of the Flora of India (Sharma and Balakrishnan, 1996), Flora of Indian Desert (Bhandari, 1990), Flora of North East Rajasthan (Sharma and Tiagi, 1979), Flora of Upper Gangetic Plain and the Adjacent Siwalic and Sub Himalaya Tract (Duthie, 1903-1929) and Flowers of Himalaya (Polunin and Stainton, 1984). The verification and authentification of collected data were made in the light of standard literature (Jain, 1963, 1991; Nadkarni, 1992).

Results
During the study, the following 29 ethno-medicinal plants belonging to 22 families were enumerated as curing agents for cold and cough. Roots and leaves were most commonly used plant parts to cure these ailments and other parts (bark, fruits, seeds, stem or whole plant) were also beneficial for treatment. The details regarding scientific name, local name, family, useful parts and medicinal values of these plants were given as follows (Tab.1).

Discussion
Cold and cough are very common among the human kind. People in the vicinity of Nahargarh Wildlife Sanctuary have been using various folk remedies for treating fever due to cold and cough. These people have been preserving this folk knowledge in
Table 1. List of medicinal plants used for cold and cough treatment in the vicinity of Nahargarh Wildlife Sanctuary

<table>
<thead>
<tr>
<th>SN</th>
<th>Botanical name</th>
<th>Local name</th>
<th>Family</th>
<th>Ethno-medicinal uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Abrus precatorius L.</td>
<td>Ratti/Chirmi</td>
<td>Fabaceae</td>
<td>Leaves are used to make tea which is drunk twice a day.</td>
</tr>
<tr>
<td>2</td>
<td>Achyranthes aspera L.</td>
<td>Chirchita</td>
<td>Amaranthaceae</td>
<td>Root powder used with a cup of cow’s milk daily twice for three days</td>
</tr>
<tr>
<td>3</td>
<td>Adhatoda vasica Nees.</td>
<td>Adusa</td>
<td>Acanthaceae</td>
<td>5-8 leaves are boiled into two cups of water and when remains one forth than its take twice a day.</td>
</tr>
<tr>
<td>4</td>
<td>Aegle marmalos (L.) Corr.</td>
<td>Bel</td>
<td>Rutaceae</td>
<td>Pulp of fruits is taken thrice a day.</td>
</tr>
<tr>
<td>5</td>
<td>Aloe vera L.</td>
<td>Ganwar-patha/Ghi-kanwar</td>
<td>Liliaceae</td>
<td>Extract of whole plant is taken.</td>
</tr>
<tr>
<td>6</td>
<td>Alstonia scholaris (L.) Br.</td>
<td>Saptparni</td>
<td>Apocynaceae</td>
<td>Bark powder is boon remedy.</td>
</tr>
<tr>
<td>7</td>
<td>Annona squamosa L.</td>
<td>Sitaphal</td>
<td>Annonaceae</td>
<td>Leaves decoction is taken.</td>
</tr>
<tr>
<td>8</td>
<td>Asparagus racemosus Wild.</td>
<td>Satavar</td>
<td>Liliaceae</td>
<td>Root powder is recommended twice daily.</td>
</tr>
<tr>
<td>9</td>
<td>Azadirachta indica Juss.</td>
<td>Neem</td>
<td>Meliaceae</td>
<td>About 7-10 leaves are boiled in cup of water till half cup remains. Decoction is drunk twice a day.</td>
</tr>
<tr>
<td>10</td>
<td>Balanites roxburghii Planch.</td>
<td>Hingota</td>
<td>Simaroubaceae</td>
<td>Decoction of bark is taken twice daily.</td>
</tr>
<tr>
<td>11</td>
<td>Calotropis procera Br.</td>
<td>Aak/Aakra</td>
<td>Asclepiadaceae</td>
<td>Smoke of leaves after burning is inhaled.</td>
</tr>
<tr>
<td>12</td>
<td>Centella asiatica (L.) Urban</td>
<td>Brahmi-buti</td>
<td>Apiaceae</td>
<td>Paste of whole plant is filtered and drunk in the morning.</td>
</tr>
<tr>
<td>13</td>
<td>Cocculus pendulus (JR. &amp; G. Forst) Ja-jamni Diels</td>
<td></td>
<td>Menispermaceae</td>
<td>Root decoction is taken twice daily.</td>
</tr>
<tr>
<td>14</td>
<td>Cordia dichotoma Forst. f.</td>
<td>Lasora</td>
<td>Boraginaceae</td>
<td>Fruits are recommended for fever due to cold.</td>
</tr>
<tr>
<td>15</td>
<td>Desmodium gangeticum (L.) D.C.</td>
<td>Shalparni</td>
<td>Fabaceae</td>
<td>Root powder is taken with water in morning.</td>
</tr>
<tr>
<td>16</td>
<td>Gloriosa superba L.</td>
<td>Kalihari</td>
<td>Liliaceae</td>
<td>Leaves are boiled in water and taken thrice a day.</td>
</tr>
<tr>
<td>17</td>
<td>Lantana indica Roxb. Ed.</td>
<td>Beshram</td>
<td>Verbenaceae</td>
<td>Flowers are soaked in water overnight and water is taken 3-4 times a day.</td>
</tr>
<tr>
<td>18</td>
<td>Leptadenia reticulata (Retz.) Wt. &amp; Jeevanthi Arn.</td>
<td></td>
<td>Asclepiadaceae</td>
<td>Twigs are crushed and sap is made. 10-15 ml sap is taken twice a day.</td>
</tr>
</tbody>
</table>
Plants that are used for treatment of cold and cough are regarded as miracle remedies and sometimes only one dose is sufficient for treatment. Plant parts were generally prepared as medicine using hot and cold water as the solvent but occasionally remedies were also prepared with milk and honey. Medicines are prescribed in different forms including decoction, paste, powder, infusion, etc., but study found that decoction and paste forms are more commonly used than other forms. Due to availability of modern synthetic medicines, the new tribal generations doesn’t like to practice and use the herbal preparation, because these remedies are time being practices.

The issue of medicinal plants conservation has been focused in the last 15 years and various conservation methods (in situ, botanical gardens, germplasm banks, etc.) were mentioned by many researchers. Nahargarh Wildlife Sanctuary has heavy biotic pressure due to situated at northern part of metropolitan city Jaipur and many ethno-medicinal plants are at the verge of extinction. Therefore, conservation of these plants should be viewed seriously. Similar observations have been recorded by Borthakur (1991), Negi et al. (1993), Rana et al. (1994), Kapoor et al. (2008), and Khan et al. (2009).

Acknowledgements
We wish to thank the Traditional Medical Practitioners in the vicinity of Nahargarh Wildlife Sanctuary for serving as key informations for this study. We are also...
grateful to Head, Department of Botany, University of Rajasthan, Jaipur for providing us various facilities during the study. Our thanks also due for Dr. Sher Mohd., Govt. Lohia College, Churu and Dr. Pawan Kasera, JNV University, Jodhpur for reading through manuscript. The authors are like to express their gratitude to Dr. Subhash Garg, Chairman, Rajasthan Secondary Board of Education, Ajmer for his inspirations and cooperation during the course of study.

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