Pollen Pictorial of some Medicinal Plants from Pakistan

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ABSTRACT

In present account an effort was made to identify some important medicinal plants with particular emphasis to their pollen pictorial. In total of 7 species including Aerva javanica (Burm.f.) Schult., Calotropis procera (Willd.) R. Br. I. c., Periploca aphylla Dcne., Eremostachys vicaryi Benth. ex Hook. f., In Jacq., Salvia moorcroftiana Wall. ex Bth. Pongamia pinnata (L.) Pierre, and Viola stocksii Boiss. were studied. Macrophotography of plants were done in field by using Sony Digital Camera where as microphotography of pollen was done in EM laboratory Quaid-i- Azam University, Islamabad. This pictorial is considered to be useful in correct identification of these precious medicinal plant species for future and related research work.

INTRODUCTION

Geographically, Pakistan is located in a transitional zone where the summer monsoon influenced climate of the east gradually merges with the winter precipitation dominated Mediterranean climate of the west. Out of the total land area of Pakistan, 88 percent is classified as arid and semi arid, with only 12 percent being humid and sub humid, primarily located in the Himalayan and Karakoran under forest cover (Rafiq, 1997, Karki and Williams, 1999). Of the nearly 5691 species of flowering plants reported to be occurring in Pakistan and Kashmir, a very large number is found in the northern and north western parts of Pakistan (Stewart, 1972, 1982).

Long standing research on medicinal plants of Pakistan in the last fifty years points to a rich resource base, spread over a wide range of ecological zones, with estimates of numbers of plant species having medicinal properties varying from 3200 species (FAO, 1987) at the upper end of the spectrum to 1,000 at the lower end (Ahmad, 1996). Of these species approximately 500 are known for their active constituents from research conducted in Pakistan and elsewhere, and around 250-300 specie known to have entered the herbal markets of Pakistan (Williams and Ahmed, 1999). It has been reported that approximately 400 to 600 medicinal plants are more frequently used in herbal preparations and tough several species which are common in certain areas are known to be used locally in traditional preparations, they have not been scientifically investigated for wider use (Rafiq, 1997).

In present study an account was made to study pollen of some important Medicinal plant species in order to make pictorial for both pollen and whole plant for correct identification in future studies.

METHODOLOGY

Study was conducted during March 2005 to February 2006 in Herbarium of Quaid-i-Azam University Islamabad Pakistan. Frequent field trips were arranged to resource based areas of Pakistan in order to identify the exact phytogeography of selected medicinal plant species. Plants were properly sketched by Sony Digital Camera in their habitat. After macrophotography these plants with polleniferous material was properly collected dried and preserved in herbarium for detailed pollen studies. Microphotography of pollen was done in TEM lab of Q.A.U. Islamabad. Voucher specimens were deposited in herbarium with photograph as a reference material for future studies.

<table>
<thead>
<tr>
<th>S #</th>
<th>Botanical Name</th>
<th>English Name</th>
<th>Local Name</th>
<th>Family</th>
<th>Flowering period</th>
<th>Habit</th>
<th>Disease treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Aerva javanica (Burm.f.) Schult.</td>
<td>Snow Bush</td>
<td>Chiti Bui</td>
<td>Amaranthaceae</td>
<td>January-October</td>
<td>Herb</td>
<td>Kidney stone, inflammation</td>
</tr>
<tr>
<td>02</td>
<td>Calotropis procera (Willd.) R. Br. I. c.</td>
<td>Sodom’s Apple</td>
<td>Akk</td>
<td>Asclepiadaceae</td>
<td>Throughout the year</td>
<td>Spreading shrub</td>
<td>Gastritis, malaria, cholera, asthma and skin diseases</td>
</tr>
<tr>
<td>03</td>
<td>Periploca aphylla Dcne. In Jacq.</td>
<td>Periploca</td>
<td>Bata</td>
<td>Asclepiadaceae</td>
<td>April-July</td>
<td>Shrub</td>
<td>Skin diseases, ulcer, constipation</td>
</tr>
<tr>
<td>04</td>
<td>Eremostachys vicaryi Benth.</td>
<td>Eremostachys</td>
<td>Sufaidphulari</td>
<td>Lamiaceae</td>
<td>March-April</td>
<td>Herb</td>
<td>Skin diseases, antiseptic</td>
</tr>
<tr>
<td>No.</td>
<td>Scientific Name</td>
<td>Common Name</td>
<td>Family</td>
<td>Season</td>
<td>Type</td>
<td>Uses</td>
<td></td>
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<tr>
<td>05</td>
<td><em>Salvia moorcroftiana</em> Wall. ex Bth.</td>
<td>Wild sage</td>
<td>Lamiaceae</td>
<td>February-May</td>
<td>Herb</td>
<td>Headache, fever, skin diseases</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td><em>Pongamia pinnata</em> (L.) Pierre</td>
<td>Pongame</td>
<td>Fabaceae</td>
<td>Throughout the year</td>
<td>Tree</td>
<td>Toothache and gum diseases</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td><em>Viola stocksii</em> Boiss.</td>
<td>Blue violet</td>
<td>Violaceae</td>
<td>March-April</td>
<td>Herb</td>
<td>Sexual Tonic</td>
<td></td>
</tr>
</tbody>
</table>

REFERENCES

- Williams, J. T. and Ahmad, Z. 1999. A report on priorities for medicinal plants research and development in Pakistan, IDRC, MAPPA, New Delhi, India.
Plate 1 A-B. *Aerva javanica*, A, Polar view, B. (1000x)
Plate 3 A-B. *Periploca aphylla*, A, Polar view, B. (200x)
Plate 5 A-B. *Salvia moorcroftiana*, A, Polar view, B. (1000x)