POLLINOSIS IN IRAN

MAJID KIMIAYI, M.D.
Anemophilous allergenic plants of Teheran (Iran) have been studied during two pollen seasons by pollen slide technique and field survey. Three distinct pollen seasons are described and etiologic factors of each is discussed.

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Pioneering the practice of allergy in a new country requires extensive research and investigation about the environmental allergenic factors. Newmark\(^1\) in his comprehensive review of *Pollen Aerobiology*, has emphasized the universal importance of these studies.

The author's experience\(^2\) and personal communication with practicing allergists of Teheran has indicated that pollinosis is the most prevalent allergic condition requiring patients' visits to allergy clinics. This prompted the author to study the anemophilous plants of Teheran.

Method

The following classic three-way approach was used for this purpose: 1) Identification of atmospheric pollens by simple slide studies during two pollen seasons (March through October, 1967-68); 2) Field survey, which was employed concomitantly for confirmation of existence and abundance of the corresponding plants; and 3) Performing skin tests in pollinosis patients. Hypersensitization with the antigens of the regional pollens will be the subject of a subsequent paper.

Microscopic slides, coated with a thin layer of white petrolatum, were exposed daily in the north-west area of the city during two pollinating seasons. The pollen were identified after staining by Calberla solution. Available atlases of pollen morphology,\(^3,4,5,6\) were used for accurate identification and, in all instances, samples of pollen taken directly from related plants, were employed for comparison. The results of our two-year slide pollen studies, which were almost identical, are summarized in Table I.

Discussion

There are three distinct pollinating seasons in Teheran: 1) The tree season which starts in early March and ends in early May. The following species of trees were found abundantly and identified as the important etiologic factors of early spring pollinosis in the Teheran area: Sycamore (*Platanus*), Elm (*Ulmus*), Ash (*Fraxinus*) and related species, Pine (*Pinus*), Mountain Cedar (*Juniperus*) and Poplar (*Populus*). These are the most widely distributed trees of the side streets, the parks of Teheran and its metropolitan area. Pollen of Sycamore, Elm and Ash were found in abundance during the tree pollinating season, and clinical sensitivity was prevalent in pollinosis patients who reacted to their extracts. Pine and Cedar pollens, although observed on

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the slides, did not seem to cause clinical sensitivity. Pollen of Pecan, which is a cultivated tree grown in the gardens and fruit orchards of the northern metropolitan area, were seen on the slides, and positive skin reactions occurred in some patients. The poplar tree, although found in the area, was not proved to be of allergic importance either by pollen studies or by skin tests.

2) The grass season. This starts in late April and extends through May and June. The grass pollen were observed on the slides during this period and even in early July. They are considered to be the second major cause of pollinosis (after weeds) in Teheran. Patients with late spring pollinosis showed positive skin reactions to grass antigens.

3) The weed season. Pollen of Chenopods were abundant on the slides from June until early October constituting the longest period of pollination. Field survey revealed wide-spread bushes of Russian Thistle (Salsola-Kali) and Kochia on the empty lots in the city, dry lands and waysides of the metropolitan area. In lesser quantities, Lamb’s Quarters (Chenopodium Album) and the Pigweeds (Amaranthus) were found. English Plantain (Plantago Lanceolata), seen sparsely on the field, was not proved to be important allergenically either by slide studies or by the skin tests. Pollen of plants related to the Composite family, especially Artemisia, were detected in small numbers during late spring and throughout the summer; a few patients showed clinical sensitivity to them, namely Sagebrush. In the field survey numerous species of entemophilous Composites, including Sages, were found. Ragweeds were absent and no sensitivity was detected on skin testing to their extracts. Numerous skin tests have proved that Russian Thistle and Kochia are the most important and toxic weeds of Teheran causing the most bothersome summer hay fever symptoms in this area.

The results of our study correspond with investigations performed in the neighboring countries of Iran and Turkey.7,8

References
5. McCrone, W. C., Draftz, R. G. and

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**TABLE I. COMPARISON OF VARIOUS POLLENS**

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Family</th>
<th>Pollination Begun</th>
<th>Pollination Ended</th>
<th>Pollination Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mountain- Cedar</td>
<td>Juniperus</td>
<td>March 2,</td>
<td>March 18,</td>
<td>Mid-March</td>
</tr>
<tr>
<td>Elm</td>
<td>Ulmus</td>
<td>March 5,</td>
<td>April 7,</td>
<td>Mid-March</td>
</tr>
<tr>
<td>Sycamore</td>
<td>Platanus</td>
<td>March 18,</td>
<td>April 27,</td>
<td>Early April</td>
</tr>
<tr>
<td>Ash</td>
<td>Fraximnus</td>
<td>March 31,</td>
<td>May 5,</td>
<td>Late April</td>
</tr>
<tr>
<td>Pine</td>
<td>Pinus</td>
<td>April 15,</td>
<td>May 20,</td>
<td>Early May</td>
</tr>
<tr>
<td>Pecan</td>
<td>Juglans</td>
<td>April 20,</td>
<td>May 21,</td>
<td>Early May</td>
</tr>
<tr>
<td>Grass</td>
<td>Gramineae</td>
<td>April 20,</td>
<td>July 24,</td>
<td>May &amp; June</td>
</tr>
<tr>
<td>Russian- Thistle (Salsola)</td>
<td>Chenopodium</td>
<td>May 22,</td>
<td>October 11,</td>
<td>June, July</td>
</tr>
<tr>
<td>Kochia</td>
<td>Chenopodium</td>
<td>May 22,</td>
<td>October 11,</td>
<td>June, July</td>
</tr>
<tr>
<td>Sages</td>
<td>Composites</td>
<td>June 2,</td>
<td>October 25,</td>
<td>September</td>
</tr>
</tbody>
</table>

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