Utilization of Solanaceae for dental care management in India

Seema Sharma and Kuldip Singh Dogra

Abstract
Solanaceae family commonly known as nightshades belongs to dicot group of flowering plants. The scientific literature revealed that members of this family is predominately used to dental care like toothache and used to clean teeth etc. In the present review 17 species of Solanaceae family has been documented which are being exploited by different tribal and rural peoples of India for dental care purpose. The species under study are arranged alphabetically on the basis of botanical name followed by other names, distribution, part used, folk use cited by earlier workers and chemical constituents. In the present scenario, even though the accessibility of Western medicine for simple and complicated diseases is available, many people still continue to depend on medicinal plants for tooth infections. The aim of this review is to document and summarize the information on various species in Solanaceae family which are used for dental care purpose. The purpose of documentation of information is necessary before it is lost permanently.

Keywords: Solanaceae, dental care, folk use, documentation

Introduction
Use of plants for healing purpose is as old as mankind itself. It has been estimated that 80% of the world population under developed countries depends upon traditional medicine obtained from plants for primary health care. In the recent past ethno-medicine gain considerable importance, mainly because of being safe and with almost no side effect. Therefore, it is the present need that such plants should be investigated to better understand their properties, safety and efficacy (Prusti et al., 2008)[25]. Even though the accessibility of Western medicine for simple and complicated tooth diseases is available, many people still continue to depend on medicinal plants for tooth infections. Due to lack of interest among the younger generation there is a possibility of losing this wealth of knowledge in the near future. It thus becomes necessary to acquire and preserve this traditional system of medicine by proper documentation and identification of specimens. In such a way the aim of this review is to document the folk lore for dental care about the plants of a particular family.

The Solanaceae, or nightshades, are an economically important family of flowering plants. The family ranges from annual and perennial herbs to vines, lianas, epiphytes, shrubs, and trees and includes a number of important agricultural crops, medicinal plants, spices, weeds, and ornamentals. The most economically important genus of the family is Solanum. The family consists of 90 genera and more than 2000 species (Shah et al. 2013)[35]. The species are medicinal herbs and contain diverse alkaloids and other biochemical constituents used for the treatment of diverse ailments (diabetes, cholera, bronchitis, high blood pressure) and as laxatives (Caicedo & Schal, 2004; Daunay & Chadha, 2004)[7,12].

Methodology of the review
The literature survey was performed using literature study, literature databases, including online catalogues of relevant institutions and e-journal consortia.

Results
The results of survey is presented in detail in Table 1.
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Botanical Name</th>
<th>Other Names</th>
<th>Distribution</th>
<th>Part Used</th>
<th>Folk Use</th>
<th>Active Constituents</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Datura innoxia</td>
<td>Eng. Name: Poison berry&lt;br&gt;Hin. Name: Barbanta</td>
<td>Wastelands and road sides throughout the tropical parts of India</td>
<td>Fruits and seeds</td>
<td>Smoke of burnt fruits and seeds inhaled in toothache</td>
<td>Gitogenin; tigogenin, tomatidine, maltase, melibiose, saccharase</td>
<td>Agarwal (2003); Chatterjee &amp; Pakrashi (1991); Jain (1991).</td>
</tr>
<tr>
<td>3</td>
<td>Solanum incanum</td>
<td>Eng. Name: Brinjal, Eggplant&lt;br&gt;Hin. Name: Baigun</td>
<td>Cultivated</td>
<td>Berries</td>
<td>Smoke of powdered burnt seeds inhaled in toothache</td>
<td>Icanunine solasodine, solamargine, solasosine and ursolic acid</td>
<td>Agarwal (2003); Duke (2002); Gill et al. (1993); Jain (1991); Kothari &amp; Londhe (2000); Osmaston (1926); Rastogi &amp; Mehrotra (1995).</td>
</tr>
<tr>
<td>5</td>
<td>Solanum nigrum</td>
<td>Eng. Name: Black nightshade&lt;br&gt;Hin. Name: Makoi</td>
<td>Throughout India up to 2700m in W. Himalaya and 1650m in Khasia Hills</td>
<td>Fruits</td>
<td>Used for toothache</td>
<td>Chlorogenic, caffeic acids</td>
<td>Bennett et al. (1991); Duke (2002); Rastogi &amp; Mehrotra (1991); Saklani &amp; Jain (1996).</td>
</tr>
<tr>
<td>8</td>
<td>Solanum viarum</td>
<td>Eng. Name: Tropical Soda Apple</td>
<td>A naturalized weed found throughout greater parts of India</td>
<td>Fruit</td>
<td>Decoction of Fruit inhaled for toothache</td>
<td>Solasurine, Solamargine and solasonine</td>
<td>Jain (1991); Rastogi &amp; Mehrotra (1991); Singh et al. (2003); Sood &amp; Thakur (2004).</td>
</tr>
<tr>
<td>9</td>
<td>Solanum virginianum</td>
<td>Eng. Name: Yellow berried night shade</td>
<td>Throughout tropical and sub tropical regions</td>
<td>Fruits and Seeds</td>
<td>Fruits and seeds used against toothdecay.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Datura innoxia</td>
<td>Hin. name: Sadadhatura</td>
<td>Found in tropical parts of India</td>
<td>Roots</td>
<td>Sahara tribes of S. E. Rajasthan chew the roots or use them like toothbrush to cure toothache</td>
<td>Atropine</td>
<td>Rastogi &amp; Mehrotra (1991, 1993); Singh &amp; Pandey (1998).</td>
</tr>
<tr>
<td>13</td>
<td>Hyoscyamus niger</td>
<td>Eng Name: Black henbane, Henbane&lt;br&gt;Hin. Name: Ajayyan, Khursani ajwain</td>
<td>Temperate western Himalaya: 2700-3600m</td>
<td>Seeds</td>
<td>Smoke of seeds coated with ghee inhaled for two minutes and spitting out after that to see larva coming out of infected teeth.</td>
<td>Linoleic, myristic, oelic, palmitic and stearic acids.</td>
<td>Agarwal (2003); Chatterjee &amp; Pakrashi (1991); Gnaik &amp; Nawchoo (2003); Jain (1973, 1991).</td>
</tr>
</tbody>
</table>

~ 72 ~
**Conclusion**

Plant-based traditional knowledge has become a recognized tool in search for new sources of drugs; it is clear that Solanaceae family can offer a platform for further research in dentistry. During the last few decades there has been an increasing interest in the study of this medicinal plants and their traditional use in different parts of the world. Therefore it should be investigated further to better understand its properties, safety and efficacy.

**References**


