SHORT REVIEW

Didymocarpus pedicellata: The Lithontriptic Ethnomedicine

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Didymocarpus pedicellata R.Br. (Gesneriaceae) is valuable although a lesser known medicinal plant. It is popularly known as stone flower. In Ayurveda it is known as shilapushpa, shantapushpi and sometimes pasanbheda (Bahl & Seshadri, 1978). In common language it is known as charela or patharphori.

Traditionally Didymocarpus pedicellata is used in the treatment of renal diseases particularly kidney stones (Kapoor & Kapoor, 1976). According to a hypothesis the plant is supposed to regulate calcium absorption in the body. The plant is known for its diuretic effect and in maintaining healthy urinary tract.

In Ayurveda pasanbheda is a drug of controversial origin. Further work on proper botanical identification of pasanbheda is warranted. The following plants are used as pasanbheda in different parts of India (Singh & Sandhu, 2005):

<table>
<thead>
<tr>
<th>S.no</th>
<th>Botanical name</th>
<th>Natural order</th>
<th>Phytochemicals</th>
<th>Parts used</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><em>Bergenia ligulata</em> (Wall.) Engl.</td>
<td>Saxifragaceae</td>
<td>Coumarin (bergenin), gallic acid, tannic acid, minerals and wax.</td>
<td>Seeds</td>
</tr>
<tr>
<td>2.</td>
<td><em>Bryophyllum calycinum</em> Salisb.</td>
<td>Crassulaceae</td>
<td>Citric acid, malic acid and flavonoids</td>
<td>Leaves</td>
</tr>
<tr>
<td>3.</td>
<td><em>Aerva lanata</em> Juss.ex Schult.</td>
<td>Amaranthaceae</td>
<td>a-amyrin and ß-sitosterol</td>
<td>Roots</td>
</tr>
<tr>
<td>4.</td>
<td><em>Bridelia crenulata</em></td>
<td>Euphorbiaceae</td>
<td>?</td>
<td>Stem bark</td>
</tr>
<tr>
<td>5.</td>
<td>Coleus</td>
<td>Lamiaceae</td>
<td>Essential oil</td>
<td>Leaves</td>
</tr>
<tr>
<td>No.</td>
<td>Species</td>
<td>Family</td>
<td>Constituents</td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>---------------------------------------------</td>
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<td>6.</td>
<td><em>Decalepis arayalpatra</em> Joseph &amp; Chandrasekharan</td>
<td><strong>Periplocaceae</strong></td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td><em>Homonoia riporia</em> Lour.</td>
<td><strong>Euphorbiaceae</strong></td>
<td>Isoflavonoids</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td><em>Rotula aquatica</em> Lour.</td>
<td><strong>Boraginaceae</strong></td>
<td>Tannins</td>
<td>Whole plant</td>
</tr>
</tbody>
</table>

The plant is native to Tropical Asia (McGuffin et al).

*Didymocarpus pedicellata* is a small herb with a reduced stem, bearing 2-3 pairs of opposite, roundy ovate, glabrous, glandular-punctate leaves, 3-6 inches in diameter (Kapoor & Kapoor, 1976; Shah, Shah & Mody, 1972).

Chemically, the plant contains:

2. Polyterpenes: didymocarpol and didymacarpenol
3. Flavonoid: didmyocarpin (Bose & Chauadhary, 1978; Garg, Gupta & Sharma, 1979), isodidmyocarpin (Bose & Chauadhary, 1978), pedicin, isopedicin and pedicellin (Sharma & Siddiqui,1939) and pediflavone (Guha & Bhattacharya, 1992).
4. Dicarboxylic acid: pedicellic acid (Rao et al, 1966). This is considered to be the active principle of *Didymocarpus pedicellata* extracts. This compound is also valued for anticancer activity.

The essential oil of *Didymocarpus pedicellata* has antimicrobial activity (Singh, Sinha & Pathak, 1978).

Ethanolic extract of the aerial parts of *Didymocarpus pedicellata* demonstrated significant antioxidant and protective activity against ferric nitriloacetate induced renal oxidative stress, nephrotoxicity and tumor promotion response. Further the extract provided significant protection against. The extract also significantly and dose-dependently protected against ferric nitriloacetate mediated damage to lipids and DNA. The nephroprotective activity of the plant is attributed to polyphenolic compounds. The study further supported ancient use of plant in the treatment of kidney diseases (Kaur et al., 2007).

References