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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 *patharphor*i.

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):

S.no	Botanical name	Natural order	Phytochemicals	Parts used
1.	*Bergenia ligulata* (Wall.) Engl.	Saxifragaceae	Coumarin (bergenin), gallic acid, tannic acid, minerals and wax.	Seeds
2.	*Bryophyllum calycinum* Salisb.	Crassulaceae	Citric acid, malic acid and flavonoids	Leaves
3.	*Aerva lanata* Juss.ex Schult.	Amaranthaceae	a-amyrin and ß-sitosterol	Roots
4.	*Bridelia crenulata*	Euphorbiaceae	?	Stem bark
5.	*Coleus*	Lamiaceae	Essential oil	Leaves

	amboinicus Lour.		(contains carvacrol)	
6.	*Decalepis arayalpatra* Joseph & Chandrasekharan	*Periplocaceae*	?	
7.	*Homonoia riporia* Lour.	Euphorbiaceae	Isoflavonoids	
8.	*Rotula aquatica* Lour.	Boraginaceae	Tannins	Whole plant

The plant is native to Tropical Asia (McGuffinet 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:

1. Chalcones (Rathore, Garg & Gupta, 1981): pashanone (Agarwal, Bhaskar & Sheshadri).
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.
5. Essential oil: main compound is didymocarpene (Singh, Sinha & Pathak, 1978).

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

1. Agarwal, S.C., Bhaskar, A. & T.R. Sheshadri. 1972. Constituents of the roots of *Didymocarpus pedicellata*. Isolation and structure of pashanone, a new chalcone. *Indian J*

Chem 12:2-5.

2. Bahl, C.P. & T.R. Seshadri. Eds.1978. Pashanbhedi: drugs for urinary calculus, K.N. Udupa 77-98.
3. Bose. P.C. & N. Chauadhary. 1978. Didmyocarpin, a new flavanone from *Didymocarpus pedicellata*. *Phytochem* 17:587-8.
4. Bose. P.C. & N. Chauadhary. 1978. Isodidmyocarpin, a new chalcone from *Didymocarpus pedicellata*. *J Indian Chem* 25:1198-1200.
5. Garg, S.K., Gupta, S.R. & N.D. Sharma. 1979. Synthesis of 7-hydroxy-5, 6, 8-trimethoxyflavone: revision of structure of didmyocarpin. *Indian J Chem* 17B:394-5.
6. Guha, P.K. & A. Bhattacharya. 1992. 5, 8-dihydroxyflavone from the immature leaves of *Didymocarpus pedicellata*. *Phytochem* 31(5): 1833-34.
7. Kapoor, S.L. & L.D. Kapoor. 1976. On the botany and distribution of `pashanbheda', *Sachitra Ayurved* 28, 12, 769-791.
8. Kaur, G. et al. 2007. Protective effect of *Didymocarpus pedicellata* on ferric nitriloacetate induced renal oxidative stress and hyperproliferative response. *Chem Biol Interact* 165(1):33-34.
9. McGuffin, M. et al. eds. 2000. *Herbs of commerce*, ed. 2. (Herbs Commerce ed2)
10. Rao, K.V. et al. 1966. Isolation and constitution of pedicellic acid a new dicarboxylic acid from the leaves of *Didymocarpus pedicellata*. *Tetrahedron* 22(4):1495-98.
11. Rathore, J.S., Garg, S.K. & S.R. Gupta. 1981. A chalcone and flavanones from *Didymocarpus pedicellata*. *Phytochem* 20:1755-6.
12. Rathore, J.S. et al. 1981. New phenolic compounds of *Didymocarpus pedicellata*. *Phytochem* 43:86-8.
13. Shah, C.S., Shah, N. & K.D. Mody. 1972. Pharmacognostic study of pashanbhed: I-III: *Bergenia ciliata* and *Didymocarpus pedicellata*. *Quarterly Journal of Crude Drug Research* 12(1): 182-193.
14. Sharma, V. & S. Siddiqui. 1939. The constituents of *Didymocarpus pedicellata*. Part 11. Comparative studies in the constitution of pedicin, isopedicin and pedicellin. *J Indian Chem Soc* 16:1-8.
15. Siddiqui, S. 1937. The constituents of *Didymocarpus pedicellata*. Part 1. Isolation of a new series of colouring matter. *J Indian Chem Soc* 12:703-8.
16. Singh, A. & A.S. Sandhu. 2005. *A Dictionary of Medicinal Plants*. Sundeep Publishers, New Delhi.
17. Singh, P., Sinha, G.K. & RC. Pathak. 1978. Antimicrobial activity of some essential oils *JRIM* 13(4):111-114.