

Pharmacological Activity Of *Helicteres Isora* L. A Review Article

Syed Muhammad Ali Shah¹, Khan Usmanghani^{1*}

¹Department of Basic Medical Science, Faculty of Eastern Medicine, Hamdard University Karachi

ABSTRACT

Helicteres isora belong to Sterculiaceae family. It has been used as a medicine from ancient time. It is a large shrub and pharmacologically seen as an antioxidant and cytoprotective. It also exhibit hepatoprotective, anticancer and anti-HIV activity. Aqueous extract of bark showed antihyperglycemic activity.

Keywords: *Helicteres isora*, Pharmacological activity, Sitosterol

INTRODUCTION

Scientific Name: *Helicteres isora* Linn.

Family: Sterculiaceae.

Synonym: Arabic- Ghoshnah, Ghoshnatah. English Names Screw, Bean, Screw Tree, Urdu Names- Maror Phalli.

DESCRIPTION

Helicteres isora is a large shrub used as an antispasmodic, anti-worm, antipyretic, antidiarrhoeal and anti-dysenteric ¹. Stems of this plant are used as anthelmintic and abdominal pain while fruits are used in anticonvulsant and abdominal pain ². Traditionally, the root juice is used in treatment of diabetes, emphysema, and snake bite ^{3,4}.

Cultivation and harvesting

Helicteres isora is a gregarious species common in evergreen forests and secondary jungles along

*Corresponding author: ugk_2005@yahoo.com

roads and forest edges. In Java, *H. isora* is found in relatively dry areas up to 300 m altitude, the habitats including teak forests, brushwood and roadsides. In

Thailand, it is found in deciduous forests and scrub areas ⁵.



Figure 1. *Helicteres isora* fruit **Figure 2.** *Helicteres isora* leaves

Morphological description

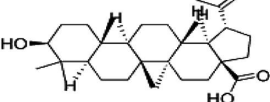
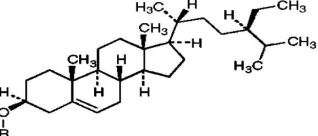
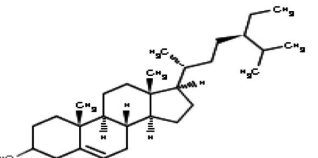
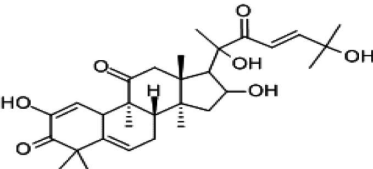
A large shrub, bark grey, leaves 7.5-15.0 cm, alternate in two opposite rows. Round-ovate, short-pointed, rough, velvety, stipules 6 mm, linear, deciduous, flowers 2.5-5 cm long, 2-4 together in a cluster on short stalks, seeds are numerous. It is aboriginal to

India and Pakistan but also found in Central & Western Peninsula, Sri Lanka. Medicinally used parts are bark, fruit and root ⁶.

Pharmacological activity

Aqueous extract of bark of *Helicteres isora* shows antihyperglycemic activity and in-vivo antioxidant activity in streptozotocin induced diabetic rats ⁷. In-vitro cytoprotective activity of methanolic extract of *Helicteres isora* was noticed that it has activity against lymphocytes and anti-tumor activity against the B16F10 melanoma cell line. *Helicteres isora* found significant cytoprotective activity against the tumors as well as normal cells ⁸. It showed remarkable ant-nociceptive activity ⁹. Hypoglycemic and hepatoprotective activity was also seen in *Helicteres isora* ¹⁰. Cytotoxic activity was seen in Cucurbitacin B and isocucurbitacin B ¹⁵. Water extract of fruits showed inhibitory activity of the of *Helicteres isora* against reverse transcriptase from avian myeloblastosis virus ¹¹ and antiHIV-1 activity ¹². Six neolignans, the helicterins A–F were isolated from aqueous extract of the fruits ¹³, *Helicteres isora* also contains flavonoid glucosides ¹⁴.

Table I. Chemical constituents of *Helicteres Isora* ¹⁴

Name Scientific	Chemical structure
Betulic acid	
Daucosterol	
Sitosterol	
Cucurbitacin B	

REFERENCES

1. Al Yahya MA., Phytochemical studies of the plants used in traditional medicine of Saudi Arabia, *Fitoterapia*, 57, 179–182 (1986).
2. Eisai PT., *Medicinal Herb Index in Indonesia*. 2nd ed. Indonesia, 77 (1995).
3. Kirtikar KR, Basu BD., *Indian Medicinal Plants*. 2nd ed. Dehradun: International Book Distributors, 371–372 (1995).
4. Singh SB, Singh AK, Thakur RS., Chemical constituents of the leaves of *Helicteres isora*, *Indian J Pharm Sci.*46, 148–149 (1984).
5. Singh RN, Roy SK., *The Bael cultivation and processing*. I.C.A.R., New Delhi, (1984).
6. Singh SB, Singh AK, Thakur RS., Chemical constituents of the leaves of *Helicteres isora*, *Indian J Pharm Sci.*46, 148–149 (1984).
7. Ganesan K, Gani SB, Arunachalam GM, Moses RP., Antihyperglycaemic and antiperoxidative effect of *Helicteres igora*L. bark extracts in streptozotocin induced diabetic rats. *J. Appl. Biomed.*, 5, 97–104, (2007).
8. Madhulika P, Sribhuaneswari S, Karthikeyan D, Sunita M, Pavani S, Atul NC, Umesh M, Kamalakannan K, Saravanankumar A, Sivakumar T., In-vitro Cytoprotection Activity of *Foeniculum vulgare* and *Helicteres isora* in Cultured Human Blood Lymphocytes and Antitumour Activity against B16F10 Melanoma Cell Line, *Research J. Pharm. and Tech.*, 1(4), 52-60 (2008).
9. Venkatesh S, Laxmi KS, Reddy BM, Ramesh M., Antinociceptive activity of *Helicteres isora*. *Fitoterapia.*, 78(2), 146-148 (2007).
10. Qu WH, Li JG, Wang MS., Chemical studies

on the *Helicteres isora*, *Zhongguo YaokeDaxue Xuebao.*, 22, 203–206 104 (1991).

11. Kusumoto IT, Shimada I, Kakiuchi N, Hattori M, Namba T, Supriyatna S., Inhibitory effects of Indonesian plant extracts on Reverse Transcriptase of an RNA Tumour Virus (I) *Phytother Res.*, 6, 241–244 (1992).
12. Otake T, Mori H, Morimoto M, Ueba N, Sutardjo S, Kusumoto IT., Screening of Indonesian plant extracts for anti-human immunodeficiency virus – Type 1 (HIV) activity, *Phytother Res.*, 9, 6–10 (1995).
13. Tezuka Y, Terazono M, Kusumoto TI, Hatanaka Y, Kadota S, Hattori M., Phytoconstituents of some Indonesian plants and their antioxidant activity, *HelvChim Acta.*83, 2908–2919 (2000).
14. Kamiya K, Saiki Y, Hama T, Fujimoto Y, Endang H, Umar M., Flavonoid glucuronides from *Helicteres isora*. *Phytochemistry*, 57, 297–301 (2001).
15. Bean MF, Antoun M, Abramson D, Chang CJ, Laughlin JL, Cassady JM., Cucurbitacin B and Isocucurbitacin B Cytotoxic components of *Helicteres isora*. *J Nat Prod.*, 48, 500–503 (1985).