



LOTUS CORNICULATUS L.- A REVIEW

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ABSTRACT

Lotus corniculatus L. (Fabaceae), commonly known as bird's foot trefoil, is a forage plant. It possesses cytotoxic, anti-inflammatory, antibacterial and antifungal activity. The plant contains benzoic acid, transilin, isosalicin, soyasaponin I, dehydrosoyasaponin I, medicarpin-3-O- β -D-glucopyranoside, pharbitoside A and p-coumaric acid. This review article provides information on the pharmacological activities of Lotus corniculatus L.

KEYWORDS : Lotus corniculatus L, Bird's-foot, cytotoxic.

INTRODUCTION

Lotus corniculatus L. is a perennial legume, popular in temperate climates for pasture, hay and silage production[1]. All the parts of the plant contain cyanogenic glycosides (hydrogen cyanide)[2]. In small quantities, hydrogen cyanide has been shown to stimulate respiration and improve digestion, it is also claimed to be of benefit in the treatment of cancer. In excess, however, it can cause respiratory failure and even death. The flowers of some forms of the plant contain traces of prussic acid and so the plants can become mildly toxic when flowering[3].

Bird's-foot-trefoil grows to between 5 and 35 cm (2 and 13.5 inches) high, and from June to September produces bright yolk-yellow pea-like blooms that are often patterned with streaks of red (hence the "bacon and eggs" reference in one of its many common names).

The "birds-foot" in the plant's most common name refers to the claw-like arrangement of its black seed pods, while trefoil comes from the leaves, which at first glance appear to consist of three separate leaflets. In fact closer inspection reveals an extra pair of leaflets near the stem.

Kingdom:Plantae

Clade:Angiosperms

Clade:Eudicots

Clade:Rosids

Order:Fabales

Family:Fabaceae

Genus:Lotus

Species:L. corniculatus

Common Names: Bird's-foot, Trefoil, Upright trefoil, Birdfoot Deervetch, Common lotus, Eggs-and-Bacon.

Habitat: Lotus corniculatus is native to Europe, Africa and temperate Asia. It is also found in some regions of Gujarat, India.

Description:

It is a perennial herbaceous plant, similar in appearance to some clovers. The flowers develop into small pea like pods or legumes. It grows to a height of 10–40 cm (4–15 in.). Stem usually bristly, glabrous–sparsely haired.

Leaves: Alternate, stalkless. Blade 2-pairs, with terminal leaflet. Leaflets with entire margins; lower pair of leaflets stipulate, ovate–lanceolate, upper

leaflets obovate–elliptic, usually blunt. Stipules vestigial.

Fruit: Straight, narrow, round, brown, opening, spreading pod (legume).



Figure 1: Lotus corniculatus L. Plant.

USES:

Antiinflammatory activity

The anti-inflammatory effects of the crude extract (CE) of Lotus corniculatus and its derived hexane (HEX), ethyl acetate (AcOEt), n-butanol (BuOH) and aqueous (Aq) fractions and isolated compounds kaempferitrin, oleanolic acid and β -sitosterol, in a mouse model of pleurisy induced by carrageenan were investigated. The crude extract of L. corniculatus and its derived fractions, and also its isolated compounds, inhibited leukocytes, exudation, and myeloperoxidase (MPO) and adenosine-deaminase (ADA) activities, as well as nitrite/nitrate concentration and interleukin-1 beta (IL-1 β) level ($p < 0.05$). L. corniculatus showed important anti-inflammatory activity by inhibition not only of leukocytes and/or exudation, but also of pro-inflammatory enzymes and mediators such as MPO, ADA, and IL-1 β . [4]

Cytotoxic activity

A study reported the isolation of benzoic acid, transilin, isosalicin, soyasaponin I, dehydrosoyasaponin I, medicarpin-3-O- β -D-glucopyranoside, pharbitoside A and p-coumaric acid from Lotus Corniculatus L.. The structures of all

compounds were elucidated on the basis of NMR and MS analysis. The antiproliferative activity of the extracts was evaluated using three continuous murine and human culture cell lines J774A1, HEK-293, and WEHI-164. The n-BuOH showed moderate cytotoxic activity. [5]

Antibacterial activity

The ethanolic extracts of Lotus corniculatus leaves were found effective against Staphylococcus aureus, Salmonella typhi and Klebsiella pneumonia. [6]

Antifungal activity

The ethanolic extracts of lotus corniculatus leaves were active against fungal species *Aspergillus Niger*, *Aspergillus Flavus*. [6]

Miscellaneous Uses

The root is carminative, febrifuge, restorative. It is used in agriculture as a forage plant, grown for pasture, hay, and silage. Taller growing cultivars have been developed for this. It may be used as an alternative to alfalfa in poor soils. It is a high quality forage that does not cause bloat in ruminants [7]. Used in an infusion to avoid the creation of hydrogen cyanide, this plant can be used as a sedative [8]. The flowers are antispasmodic, cardiotoxic [9]. The root is carminative, febrifuge, restorative and tonic [10].

CONCLUSION

Lotus corniculatus L. exhibited various biological activities. Further researches have to be carried out to find the different pharmacological activities of *Lotus corniculatus* L..

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