

Broom

Species (Family)

Sarothamnus scoparius (L.) Koch. (Leguminosae/Papilionaceae)

Synonym(s)

Cytisus scoparius (L.) Link, Hogweed, Scoparius, *Spartium scoparium* L.

Part(s) Used

Flowerhead

Pharmacopoeial and Other Monographs

BHC 1992^(G6)

BHP 1996^(G9)

Martindale 32nd edition^(G43)

PDR for Herbal Medicines 2nd edition^(G36)

Legal Category (Licensed Products)

Broom is not included in the GSL.^(G37)

Constituents^(G2,G40,G41,G48,G62,G64)

Alkaloids Quinolizidine-type. 0.8–1.5%. Sparteine 0.3–0.8% (major component); minor alkaloids include cytisine (presence disputed), genisteine (*d*- α -isosparteine), lupanine, oxysparteine and sarothamine.

Amines Epinine, hydroxytyramine and tyramine.

Flavonoids Scoparin and vitexin.

Other constituents Amino acids, bitter principles, carotenoids, fat, resin, sugars, tannin, wax and volatile oil.

Food Use

Broom is listed by the Council of Europe as a natural source of food flavouring (category N3). This category indicates that broom can be added to foodstuffs in the traditionally accepted manner, although there is insufficient information available for an adequate assessment of potential toxicity.^(G16)

Herbal Use

Broom is stated to possess cardioactive, diuretic, peripheral vasoconstrictor and antihaemorrhagic properties. It has been used for cardiac dropsy, myocardial weakness, tachycardia, profuse menstruation and specifically for functional palpitation with lowered blood pressure.^(G2,G7,G64) Broom is also reported to possess emetic and cathartic properties.^(G41)

Dosage

Dried tops 1–2 g as a decoction.^(G7)

Liquid extract 1–2 mL (1:1 in 25% alcohol).^(G7)

Tincture 0.5–2.0 mL (1:5 in 45% alcohol).^(G7)

Pharmacological Actions

The pharmacological actions of broom are primarily due to the alkaloid constituents.

In vitro and animal studies

Sparteine is reported to exhibit pharmacological actions similar to those of quinidine. Low doses administered to animals result in tachycardia, whereas high doses cause bradycardia and may lead to ventricular arrest. Sparteine has little effect on the central nervous system (CNS), but peripherally, paralyzes motor nerve terminals and sympathetic ganglia as a result of a curare-like action.^(G44)

The flowers, seeds, root and whole herb have been used to treat tumours.^(G41)

Clinical studies

None documented for broom. However, sparteine is known to decrease the irritability and conductivity of cardiac muscle and has been used to treat cardiac arrhythmias,^(G44) restoring normal rhythm in previously arrhythmic patients.^(G2) Sparteine is reported to have a quinidine-like action rather than a digitalis-like action.^(G2) Sparteine is also stated to be a powerful oxytocic drug, which was once used to stimulate uterine contractions.

Side-effects, Toxicity

The alkaloid constituents in broom are toxic. Sparteine sulfate has been reported to be a cardiac depressant and can also produce respiratory arrest.^(G44) Symptoms of poisoning are characterised by tachycardia with circulatory collapse, nausea, diarrhoea, vertigo and stupor.

Contra-indications, Warnings

Broom is stated to be inappropriate for non-professional use.^(G49) Its use is contra-indicated in individuals with high blood pressure^(G49) or a cardiac disorder, because of the alkaloid constituents.

Pregnancy and lactation The use of sparteine is contra-indicated during pregnancy.^(G42) Sparteine is

stated to be a powerful oxytocic drug and is cardio-toxic. Broom should not be taken during lactation.

Pharmaceutical Comment

The chemistry of broom is well documented. The pharmacological actions are primarily due to the alkaloid constituents. Sparteine, the major alkaloid component, is a cardiac depressant with actions similar to those of quinidine. Although these actions support the documented traditional herbal uses, broom is not suitable for self-medication.

References

See General References G2, G9, G11, G16, G31, G32, G36, G37, G40, G41, G42, G43, G48, G49, G62 and G64.