

Corn Silk

Species (Family)

Zea mays L. (Gramineae)

Synonym(s)

Stigma Maydis, Zea

Part(s) Used

Stigma, style

Pharmacopoeial and Other Monographs

BHC 1992^(G6)

BHP 1996^(G9)

PDR for Herbal Medicines 2nd edition^(G36)

Legal Category (Licensed Products)

Corn silk is not included in the GSL.^(G37)

Constituents^(G2,G6,G40,G41,G44,G49,G64)

Amines 0.05%. Type not specified, although hordenine is listed for the genus *Zea*.

Fixed oils 1.85–2.25%. Contain glycerides of linoleic, oleic, palmitic and stearic acids.

Saponins 3% (unspecified).

Tannins Up to 11.5–13% (unspecified).

Other constituents Allantoin, bitter glycosides (1%), cryptoxanthin, cyanogenetic compound (unidentified),⁽¹⁾ flavone, gum, phytosterols (e.g. sitosterol, stigmasterol), pigments, resin, vitamins (C and K).

Food Use

Corn silk is listed as a natural source of food flavouring (category N2). This category indicates that corn silk can be added to foodstuffs in small quantities, with a possible limitation of an active principle (as yet unspecified) in the final product. In

the USA, corn silk is listed as GRAS (Generally Recognised As Safe).^(G41) The fruits are classified as category N1 with no restriction on their use.^(G16) Corn (maize) oil and flour are commonly used in cooking.

Herbal Use

Corn silk is stated to possess diuretic and stone-reducing properties. It has been used for cystitis, urethritis, nocturnal enuresis, prostatitis, and specifically for acute or chronic inflammation of the urinary system.^(G2,G6,G7,G8,G64)

Dosage

Dried style/stigma 4–8 g or by infusion three times daily.^(G6,G7)

Liquid Extract of Maize Stigmas (BPC 1923) 4–8 mL.

Tincture 5–15 mL (1:5 in 25% alcohol) three times daily.^(G6,G7)

Syrup of Maize Stigmas (BPC 1923) 8–15 mL.

Pharmacological Actions

In vitro and animal studies

Corn silk is stated to possess cholagogue, diuretic, hypoglycaemic, and hypotensive activities in laboratory animals.^(2,G41) Utilising aqueous extracts, a methanol-insoluble fraction has been reported to exhibit diuretic activity in rabbits,^(G41) and an isolated crystalline component has been documented to have a hypotensive action and to stimulate uterine contraction in rabbits.⁽³⁾ The latter two actions were thought to involve a cholinergic mechanism. The action of corn silk extract on experimental periodontolysis in hamsters has been documented.⁽⁴⁾

Cryptoxanthin is stated to possess vitamin A activity,^(G48) and tannins are known to possess astringent properties.

Clinical studies

It has been stated that an aqueous extract is strongly diuretic in humans,^(G41) and that clinical studies have indicated corn silk to be effective in kidney and other

diseases.^(G41) No further information on human studies was located to support these statements.

Side-effects, Toxicity

Allergic reactions including contact dermatitis and urticaria have been documented for corn silk, its pollen and for starch derived from corn silk.^(G51) Cornstarch is considered to be a known allergen.^(G51) The toxicity of a methanol-insoluble fraction of an aqueous corn silk extract has been reported to be low in rabbits. The effective intravenous dose for a diuretic action was documented as 1.5 mg/kg body weight compared to the lethal intravenous dose of 250 mg/kg.^(G41) Corn silk contains an unidentified toxic principle,^(1,2) and is listed as being capable of producing a cyanogenetic compound.⁽¹⁾

Contra-indications, Warnings

Corn silk may cause an allergic reaction in susceptible individuals. Excessive doses may interfere with hypoglycaemic drug therapy (*in vivo* hypoglycaemic activity has been documented) or with hypertensive or hypotensive therapy (*in vivo* hypotensive activity reported), and prolonged use may result in hypokalaemia because of the diuretic action.

Pregnancy and lactation Corn silk has been documented to stimulate uterine contractions in rabbits.

In view of this, doses of corn silk greatly exceeding amounts used in foods should not be taken during pregnancy or lactation.

Pharmaceutical Comment

Limited information is available on the constituents of corn silk. Extracts have been reported to exhibit diuretic actions in both humans and animals, thus justifying the reputed herbal uses. However, no additional data were located to support these reported actions. In view of the lack of toxicity data, excessive use of corn silk should be avoided.

References

See also General References G2, G6, G9, G10, G16, G36, G37, G40, G41, G48, G49, G51 and G64.

- 1 Seigler DS. Plants of the northeastern United States that produce cyanogenic compounds. *Economic Bot* 1976; 30: 395–407.
- 2 Bever BO, Zahnd GR. Plants with oral hypoglycaemic action. *Q J Crude Drug Res* 1979; 17: 139–196.
- 3 Hahn SJ. Pharmacological action of *Maydis* stigma. *K'at'ollik Taehak Uihakpu Nonmunjip* 1973; 25: 127–141.
- 4 Chaput A *et al.* Action of *Zea mays* L. unsaponifiable titre extract on experimental periodontolysis in hamsters. *Med Hyg (Geneve)* 1972; 30: 1470–1471.