



- **Latin Name:** Stigmata maydis
- **Active**
Ingredient: Zeaxanthin, Lutein
- **CAS No.:**
- **Test method:** TLC
- **Specifications:** 10:
1,50:1, 1%, 1.2%, 3%, 8%, 10%, 15%, 20%, 80%,

Product Description:

Name : Corn Silk Extract

Source: Corn Silk (Zea mays, maize silk or Stigmata maydis)

Botanical Name : Stigmata maydis

Extract part: Stigma

Composition Ratio : 10:1

Appearance: Fine Brownish yellow powder

Country of origin: P.R. China

Source

Corn (*Zea mays* L.) also called maize ,is a commercial crop that was believed to be first cultivated by the Aztecs and Mayans. Stigmas from female maize flowers, popularly called corn silk (*Stigma maydis*) is an important herb used traditionally by the Chinese, and Native Americans to treat edema as well as cystitis, gout, kidney stones, nephritis, prostatitis and similar ailments. It is also used as traditional medicine in many parts of the world such as Turkey, United States and France. Attributed to its plant's flavonoids and terpenoids, its potential antioxidant and healthcare applications as diuretic agent, in hyperglycemia reduction, as anti-depressant and anti-fatigue use have been claimed in several reports. Other uses of corn silk include teas and supplements to treat urinary related problems.

Main Bio-active

Corn silk contains proteins, flavonoid, carbohydrates, vitamins, minerals including iron, zinc, and fiber. It contains chemicals which might work like water pills (diuretics), and it might alter blood sugar levels, and help reduce inflammation.

Corn silk also contains saponins, and crude polysaccharide from corn silk contained rhamnose, xylose, arabinose, mannose, glucose with largest proportion and galactose and other monosaccharides.

The main constituents of the volatile extract were cis-alpha-terpineol (24.22%),

6,11-oxidoacorene (18.06%), citronellol (16.18%), trans-pinocamphone (5.86%), eugenol (4.37%), neo-iso-3-thujanol (2.59%), and cis-sabinene hydrate (2.28%).

Pharmacological functions

According to the summary on Carbohydrate Polymers the bio-activities of corn silk were widely reported in the literatures, including antioxidant activities, anti-proliferative effects on human tumor necrosis factor (TNF)- α and lipopolysaccharide-induced cell adhesion, anti-diabetic activity on hyperglycemia rats, diuretic activity, anticoagulant activity, antifungal, anti-fatigue and weight loss activities.

Anti-diabetic

Chinese scientists investigate the effect of Corn silk on patients with early diabetic nephropathy. Their published result on CHINESE ARCHIVES OF TRADITIONAL CHINESE MEDICINE shows after three months ingestion of Corn silk the microalbuminuria excretion rate was decreased significantly in patients with treatment of Corn silk. In conclusion, Corn silk exhibited significant improvement in the renal function.

Antitumor

Interfering with cytokines such as tumour necrosis factor- α (TNF) or E. Coli lipopolysaccharide (LPS) induces the expression of several leukocyte adhesion or adhesion molecules up-regulation is an important therapeutic target for the treatment of bacterial sepsis and various inflammatory diseases.

A crude ethanolic extract of corn silk (stigma of *Zea mays*) exhibited significant activity. The extract at concentrations of 9-250 $\mu\text{g/ml}$ effectively inhibited the TNF- and LPS-induced adhesiveness of EAhy 926 endothelial cells to monocytic U937 cells. Corn silk extract also blocked the TNF and LPS but not the phorbol 12-myristate 13-acetate-induced ICAM-1 expression on EAhy 926 endothelial cell surface. Scientists reported their concluded conclusion on *Planta Medica* that corn silk possesses important therapeutic potential for TNF- and LPS-mediated leukocyte adhesion and trafficking.

Antioxidant

Research result release by Food Chemistry shows two flavone glycosides showing potent antioxidant activity, particularly isoorientin-2"-O- α -l-rhamnoside, demonstrated significant total antioxidant activity, DPPH radical scavenging activity, reducing power and iron-chelating capacity, with EC50 values of 14.24 ± 1.49 , 22.69 ± 2.33 , 6.58 ± 1.07 and $30.25 \pm 3.05 \mu\text{g/ml}$, respectively. Results obtained indicated that corn silk extracts can be used potentially as a ready accessible and valuable bioactive source of natural antioxidants.

Immunostimulating

Biochemistry and Molecular Biology Reports suggested maysin, a major flavonoid of Corn silk, can be a new immunomodulator, enhancing the early innate immunity. In the report the effects of maysin on macrophage activation were evaluated, using the murine macrophage RAW 264.7 cells. The result showed Maysin is nontoxic up to 100 $\mu\text{g/ml}$, and dose-dependently increased TNF- α secretion and iNOS production by 11.2- and 4.2-fold, respectively, compared to untreated control. The activation and subsequent nuclear translocation of NF- κB was substantially enhanced

upon treatment with maysin (1-100 µg/ml). Maysin also stimulated the phosphorylation of Akt and MAPKs (ERK, JNK). These results indicated that maysin activates macrophages to secrete TNF-α and induce iNOS expression, via the activation of the Akt, NF-κB and MAPKs signaling pathways.

Applications

Corn silk is used for bladder infections, inflammation of the urinary system, inflammation of the prostate, kidney stones, and bedwetting. It is also used to treat congestive heart failure, diabetes, high blood pressure, fatigue, and high cholesterol levels.

Side effects

Journal of Ethnopharmacology A number of significant differences were seen between groups, but none of them was considered to be adverse. Based on the present study, the no-observed-adverse-effect level (NOAEL) of corn silk is at least 8.0% which corresponds to a mean daily corn silk intake of approximately 9.354 and 10.308 g/day/kg body weight for males and females, respectively.

--Maize - Wikipedia, the free encyclopedia; <https://en.wikipedia.org/wiki/Maize>

--Khairunnisa H, Puziah H Shuhaimi M; "Corn Silk (Stigma Maydis) in Healthcare: A Phytochemical and Pharmacological Review"; Molecules 2012

--CORN SILK: Uses, Side Effects, Interactions and Warnings WebMD;

<http://www.webmd.com/vitamins-supplements/ingredientmono-140-CORN%20SILK.aspx?activeIngredientId=140&activeIngredientName=CORN%20SILK>

--Shuhan Chen · Haixia Chen · Jingge Tian · Jia Wang · Yanwei Wang · Lis...; "Enzymolysis-ultrasonic assisted extraction, chemical characteristics and bioactivities of polysaccharides from corn silk"; Carbohydrate Polymers · 2014

--El-Ghorab A, El-Massry KF, Shibamoto T; "Chemical composition of the volatile extract and antioxidant activities of the volatile and nonvolatile extracts of Egyptian corn silk (Zea mays L.)." J Agric Food Chem. 2007

--Y Fang, J Ying, Z He-xin, W Tian-feng, C Ye-huan, Y Xiong-wei, X Ya-ping; "Protection Effect of Yumixu Decoction on Patients with Diabetic Nephropathy"; CHINESE ARCHIVES OF TRADITIONAL CHINESE MEDICINE

--Solomon Habtemariam; "Extract of Corn Silk (Stigma of Zea mays) Inhibits Tumour Necrosis Factor-α- and Bacterial Lipopolysaccharide-Induced Cell Adhesion and ICAM-1 Expression"; Planta Medica · 1998

--Jun Liu1, Cuina Wang, Zuozhao Wang, Cheng Zhang, Shuang Lu, Jingbo Liu; "The antioxidant and free-radical scavenging activities of extract and fractions from corn silk (Zea mays L.) and related flavone glycosides"; Food Chemistry

--Cuina Wang, Tiehua Zhang, Jun Liu, Shuang Lu, Cheng Zhang, Erlei Wang, Zuozhao Wang, Yan Zhang, Jingbo Liu; "Subchronic toxicity study of corn silk with rats"; Journal of Ethnopharmacology