ORGANIC HERB INC
NATURAL INGREDIENT SOLUTIONS
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- **Latin Name: Astragalus membranaceus (Astragalus propinquus)**
- **Active Ingredient: Polysaccharides,Astragaloside IV,Cycloastragenol**

Product Description:

Name :Astragalus Extract

Source: Astragalus membranaceus

Botanical Name : Astragalus membranaceus (Astragalus propinquus)

Extract part:Root

Composition ratio: 20:1

Identification measure :HPLC

Appearance: Fine Brownish Yellow powder

Country of origin:P.R. China

Source

Huangqi is the dired root of a flowering plant named as Astragalus propinquus (syn. Astragalus membranaceus or more commonly known as Astragalus.It is a medical herb from the largest genus of plants of the legume family Fabaceae and the subfamily Faboideae,Astragalus .Astragalus species has been used as an analgesic, antihypertensive, antioxidative, antiseptic, antisudorific, antiviral, hepatoprotective, immune-stimulant, tonic and for wound healing.Astragalus propinquus is one of the 50 fundamental herbs used in traditional Chinese medicine and one of the most popular health-promoting herbal medicines, has been used historically as an immunomodulating agent for the treatment of common cold, diarrhea, fatigue and anorexia for more than 2000 years. It was first described in the Chinese book Shen Nong Ben Cao Jing in 200 AD with a wide range of treatment effects and no toxicity.It nourishes Qi and blood, and is used for the treatment of cardiovascular disorders, hepatitis, kidney disease, and skin diseases.Researches showed Astragalus propinquus possess multiple pharmacological properties included anti-apoptosis, anti-oxidation,immunostimulant and anti-bacterial effects.

Main bio-actives

According to researches reports, the constituents of Huangqi include saponins, polysaccharides and flavonoids. The root contains over 126 different components, primarily flavonoids, saponins, and polysaccharides as the main bioactive components but also contains sucrose, amino acids, and

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phenolic acids.Modern phytochemistry and pharmacological experiments have proved that polysaccharide ,Astragaloside IV and Cycloastragenol are the major active ingredients in the root of A. membranaceus with various important bioactivities, such as immunomodulation, antioxidant, antitumor, anti-diabetes, antiviral, hepatoprotection, anti-inflammation, anti-atherosclerosis, hematopoiesis and neuroprotection.

Functions

Anti-inflammatory

Study conducted to evaluated the beneficial effects and the mechanisms of astragalus polysaccharides (APS) on adjuvant induced arthritis (AA) in rats.Effects of treatment of AA rats with increasing doses of APS, Tripterygium glycosides (positive control) and saline (negative control) on swelling, arthritic index, synovial cell accumulation, serum concentrations of tumor necrosis factor α (TNFα) and interleukin1β(IL1β), synovial apoptosis and immunostaining for Bcl2 and Bax were determined. The result showed APS treatment reduced multiple indices of arthritis in rats with AA.APS treatment reduced cell accumulation, swelling and arthritic index of the joints and serum concentrations of TNFα and IL1β in a dosedependent manner in AA rats. Synovial cell apoptosis was elevated in response to APS treatment and accompanied by increased staining for proapoptotic Bax protein and decreased staining for antiapoptotic Bcl2 protein.

Effects on immunity system

The immunopotentiating effect of the roots of Astragalus membranaceus, a medicinal herb, has been associated with its polysaccharide fractions (Astragalus polysaccharides, APS).Scientists demonstrated that APS activates mouse B cells and macrophages, but not T cells, in terms of proliferation or cytokine production. Fluorescence-labeled APS (fl-APS) was able to selectively stain murine B cells, macrophages and a also human tumor cell line, THP-1, as determined in flow cytometric analysis and confocal laser scanning microscopy. The specific binding of APS to B cells and macrophages was competitively inhibited by bacterial lipopolysaccharides. Rabbit-anti-mouse immunoglobulin (Ig) antibody was able to inhibit APS-induced proliferation of, and APS binding to, mouse B cells. Additionally, APS effectively stimulated the proliferation of splenic B cells from C3H/HeJ mice that have a mutated TLR4 molecule incapable of signal transduction. These results indicate that APS activates B cells via membrane Ig in a TLR4-independent manner. Interestingly, macrophages from C3H/HeJ mice were unable to respond to APS stimulation, suggesting a positive involvement of the TLR4 molecule in APS-mediated macrophage activation. Monoclonal Ab against mouse TLR4 partially inhibited APS binding with macrophages, implying direct interaction between APS and TLR4 on cell surface. These results may have important implications for our understanding on the molecular mechanisms of immunopotentiating polysaccharides from medicinal herbs.

Hypoglycemic effect

Astragalus polysaccharide(APS) was noted to exerts insulin-sensitizing and hypoglycemic activities through experimental examine on type2 diabetic(T2DM) rats.To further confirm the hypoglycemic effect of APS and to investigate its possible mechanism underlying the improvement of insulin resistance in vivo and in vitro,Mao et al studies the APS effects on Diet-induced insulin resistant C57BL/6J mice.Subjects treated with or without APS

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(orally,700mg/kg/d) for 8 weeks were analyzed and compared.Simultaneously, an insulin resistant C2C12 cell model and an ER stressed HepG2cell model were established and incubated with or without APS (200 mg/ml) for 24 h respectively.APS could alleviate insulin resistance and ER stress induced by high glucose in vivo and in vitro, respectively.The hyperglycemia,hypolipemia,and hyperinsulinemia status were controlled with APS therapy.Insulin action in the liver of insulin resistant mice was restored significantly with APS administration. APS enhanced adaptive capacity of the ER and promoted insulin signaling by the inhibition of the expression and activity of PTP1B.Furthermore, the anti-obesity effect and hypolipidemia effects of APS were probably due partly to decreasing the leptin resistance of mice, which would positively couple with the normalization of plasma insulin levels.The result have shown that APS has beneficial effects on insulin resistance and hyperglycemia. The mechanism is related to the alleviation of ER stress and insulin resistance under hyperglycemia conditions.

Cardioprotective

The effect and the mechanism of Astragalus polysaccharide (APS) on lipopolysaccharide(LPS)-induced cardiac myocytes hypertrophy on rats .The hypertrophic primary cardiac cells of neuonatal rats were induced by 1 mg·L-1 LPS,and the effect of different concent rations of APS and BAY11-7082(IκBα phosphorylation inhibitor) on cardiac hypertrophy was observed.The study result showed APS and BYA11-7082 could inhibit the LPS-induced cardiac hypertrophy by reducing the cardiomyocyte protein content and volume;APS could abolish the inflammatory response induced by LPS in a dose-dependent manner,which was partially via attenuating IκBα and TNF-α signaling pathway.The investigation suggested APS has a protective effect on LPS-induced cardiac hypertrophy,which is partially via attenuating inflammatory through TLR4/NF-κB signaling pathway.

Antioxidant activity and antitumour activity

Investigation through high performance liquid chromatography (HPLC) and Fourier transform infrared (FTIR) determined the antioxidant activity and antitumour activity of APS .APS showed strong antioxidant activity in all the tested methods. The in vitro antioxidant capacity of APS was significantly correlated with its content. In addition to the antioxidant activity of the polysaccharides, it still showed strong antitumour activity. Then, CD40 gene siRNA plasmid (Psilencer1. 0U6P I3KsiRNA) was constructed. Antitumour activity of siRNA was evaluated. Among these samples, Astragalus polysaccharides exhibited more antitumour potency than siRNA. Mechanism of antitumour activity of APS and siRNA may be explained by decreasing CD40 in cells.

Applications

Astragalus polysaccharide has many potential application in clinical treatment ,officinal treatment and health support supplement as it possess a wide range of pharmacological actions reported from several studies.

--Astragalus - Wikipedia, the free encyclopedia
--Astragalus propinquus - Wikipedia, the free encyclopedia
--Jiang JB et al; “Therapeutic effects of astragalus polysaccharides on inflammation and synovial

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apoptosis in rats with adjuvantinduced arthritis";Int J Rheum Dis

--Bao-Mei Shao et al; "A study on the immune receptors for polysaccharides from the roots of Astragalus membranaceus, a Chinese medicinal herb";Biochemical and Biophysical Research Communications

--Xian-qing Mao et al; "Hypoglycemic effect of polysaccharide enriched extract of Astragalus membranaceus in diet induced insulin resistant C57BL/6Jmice and its potential mechanism";Phytomedicine

--Rui Li ET AL; "Antioxidant activity of Astragalus polysaccharides and antitumour activity of the polysaccharides and siRNA";Carbohydrate Polymers