ORGANIC HERB INC
NATURAL INGREDIENT SOLUTIONS
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- **Latin Name: Cistanche Tubulosa L**
- **Active Ingredient: Echinacoside,Verbascoside**
- **CAS No.:**
- **Test method: HPLC**

Product Description:

Name :Cistanche Tubulosa Extract
Source: Cistanche Tubulosa
Botanical Name : Cistanche Tubulosa L
Extract part:Root
Composition ratio : 10:1
Identification measure :HPLC
Appearance: Fine Brownish Yellow powder
Country of origin:P.R. China

Source

Cistanche tubulosa is a holoparasitic desert plant speciest in the genus Cistanche that is commonly called as Desert hyacinth.The plant lacks chlorophyll and obtains nutrients and water from the host plants whose roots it parasitizes.The plant is native to the Taklimakan desert region of Xinjiang Uyghur Autonomous Region northwest China where it grows on host desert plants tamarix and haloxylon ammodendron.Along with other members of the genus, Cistanche deserticola is the primary source of the Chinese herbal medicine cistanche.Cistanche has been used as a medicine for about 1800 years and is recorded in the Shennong Bencao Jing and Bencao Gangmu as a tonic.The main sources of the Chinese herbal medicine cistanche are Cistanche salsa and Cistanche deserticola, although it may also be obtained from Cistanche . tubulosa. The drug, known in Chinese as suosuo dayun, is collected in spring before sprouting, by slicing the stems of the plant.A recent study found a combination of Cistanche Tubulosa and Laminaria Japonica Extracts to be "promising substances for promoting health of the scalp and hair treatment".

Main bio-actives

Recent in vitro or in rodent models studies demonstrated that the extracts or chemical compounds isolated from Cistanche tubulosa possesses a variety of pharmacological effects.There are several chemical constituents which may be responsible for these effects include acteoside, echinacoside, and cistanosides .Researches reported Cistanche tubulosa contains several phenylethanoid glycosides, including echinacoside, which is a major bioactive phenyethanoids in medicinal herba

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Cistanche and has been reported to have antiinflammatory activity and beneficial effect on wound healing in many experimental studies.

Functions

Neuroprotective effects

Journal of Ethnopharmacology reported that simultaneous treatment with echinacoside (ECH) attenuated the diminution of DA, DOPAC and HVA induced by 6-OHDA .The results implied that ECH could protect the striatal dopaminergic neurons from injury induced by 6-OHDA and may be useful in the prevention and treatment of Parkinson's disease (PD).Other study showed the ECH on H2O2-induced cytotoxicity in the rat pheochromocytoma cell line (PC12 cells).The data show that application of ECH to H2O2-injured PC12 cells (HIPCs) increased cell viability and decreased the apoptotic ratio. Flow cytometry (FCM) and laser scanning confocal microscopy (LSCM) analysis suggested that ECH exerted its inhibitory effects on the formation of reactive oxygen species (ROS) and the accumulation of intracellular free Ca2+ ([Ca2+]i).In summary, ECH showed significant neuroprotective effects on HIPCs through the mitochondrial apoptotic pathway, and could be a potential candidate for intervention in neurodegenerative diseases such as Alzheimer's and Parkinson's disease.

Anti-Hepatic Fibrosis

Rcently the evaluation of the anti-hepatic fibrosis effect of echinacoside(ECH) was released by Molecules ..The result show HSC proliferation was obviously inhibited after treatment with ECH .The result demonstrated that ECH exert anti-hepatic fibrosis effect by inhibiting hepatic stellate cell (HSC) activation, blocking the conduction of signaling pathways in transforming growth factor-1 (TGF-1)/smad, suggesting that inhibition of activation of TGF- 1/Smad signaling may be the underlying mechanism by which Cistanche tubulosa protect against chronic liver disease associated with fibrosis, and echinacoside is one of the effective anti-fibrotic material basis of Cistanche tubulosa.

Anticancer

Researches noted that ECH possess anticancer effect due to the potent reactive oxygen species (ROS)-scavenging and anti-oxidative bioactivities, which protect cells from oxidative damages.As cancer cells are often under intense oxidative stress,ECH significantly inhibited the growth and proliferation of a panel of cancer cell lines. Treatment of the human SW480 cancer cells with ECH resulted in marked apoptosis and cell cycle arrest, together with a significant increase in active caspase 3 and cleaved PARP, and upregulation of the G1/S-CDK blocker CDKN1B (p21). Interestingly, immunocytochemistry examination of drug-treated cancer cells revealed that ECH caused a significant increase of intracellular oxidized guanine, 8-oxoG, and dramatic upregulation of the double-strand DNA break (DSB)-binding protein 53BP1, suggesting that ECH induced cell cycle arrest and apoptosis in SW480 cancer cells via induction of oxidative DNA damages. In addition ,other study on OncoTargets and Therapy raveled that ECH inhibit various human cancer cell lines by increasing the cellular level of oxidized guanine (8-oxoguanine), while cellular reactive oxygen species level remained unchanged, indicating that ECH also inhibited the activity of cellular MTH1.Consequently, ECH treatment induced an immediate and dramatic increase in DNA damage markers and upregulation of the G1/S-CDK inhibitor p21, which were followed by

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marked apoptotic cell death and cell cycle arrest in cancer but not in noncancer cells. These results establish ECH as a novel chemical scaffold for development of anticancer drugs as well as an MTH1 inhibitor.

Osteoporosis

Experiments conducted to o investigate the efficacy and safety of ECH on osteopenia rat models.Forty-eight 6-monthold female Sprague-Dawley rats were randomly divided into one sham-operated group (SHAM) and five OVX (ovariectomized) subgroups: SHAM with vehicle 0.5% carboxymethylcellulose sodium (0.5% CMC-Na) and OVX with vehicle (OVX), OVX with 17β-estradiol (E2), and OVX with ECH of graded doses (ECH-L, ECH-M, and ECH-H). The effects of ECH and E2 on serum biochemical parameters, bone mineral density (BMD), bone biomechanical properties, bone microarchitecture, and immunohistochemistry were examined, and safety assessments were also evaluated. The results showed that ECH treatments improved total femur BMD, bone microarchitecture, and biomechanical properties and decreased serum marker levels in comparison to OVX group. Moreover, ECH administration significantly increased osteoprotegerin (OPG) level, and decreased receptor activator of nuclear factor-kB ligand (RANKL) level in serum, as well as in proximal femur. Importantly, ECH treatment ameliorated the lipid parameters without the overall incidences of adverse events of uterus and mammary gland compared to OVX and SHAM groups. This study demonstrated that administration of ECH for 12 weeks can effectively and safely prevent OVXinduced osteoporosis in rats via increasing the OPG/RANKL ratio.

Applications

Many researches showed Echinacoside possess multiple pharmacological activities which may has potential utilisation in clinic treatment , pharmaceutical,prophylaxis ,health promote supplement and skincare .

--Cistanche - Wikipedia, the free encyclopedia
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--Rong Kuang et al; “Protective Effects of Echinacoside, One of the Phenylethanoid Glycosides, on H2O2-Induced Cytotoxicity in PC12 Cells”;Planta Med 2009
--Shu-Ping You et al; “Phenylethanol Glycosides from Cistanche tubulosa Suppress Hepatic Stellate Cell Activation and Block the Conduction of Signaling Pathways in TGF-1/smad as Potential Anti-Hepatic
Fibrosis Agents”;Molecules 2016
--Liwei Dong et al; “Echinacoside Induces Apoptosis in Human SW480 Colorectal Cancer Cells by Induction of Oxidative DNA Damages”;International Journal of Molecular Sciences 2015
--Liwei Dong et al; “Echinacoside induces apoptotic cancer cell death by inhibiting the nucleotide pool sanitizing enzyme MTH1”;OncoTargets and Therapy 2015
--Xiaolin Yang et al; “Efficacy and Safety of Echinacoside in a Rat Osteopenia Model”;Evidence-Based Complementary and Alternative Medicine 2013