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Pharmacological effects of Bailing capsule and its application in lung disease research

Xu H, Li S

Abstract

Cordyceps sinensis is a medicinal fungus of Traditional Chinese Medicine.

There are a wide range of reported uses of Cordyceps sinensis in the literature. However, the production of Cordyceps sinensis is so limited that can not be widely used. Cultured Cordyceps sinensis (Bailing Capsule) and natural Cordyceps sinensis have similar chemical composition. Bailing Capsule possesses anti-inflammatory, anti-hypoxia, anti-tumor effect function and regulating the endocrine system, enhanced immune function, which has a protective effect on the kidney, lung, liver and other organs.

Recently, Bailing capsule has some beneficial effects on pulmonary diseases, such as COPD, Pulmonary fibrosis, Asthma, which have been gradually applied to the clinical.

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Protection of chronic renal failure by a polysaccharide from *Cordyceps sinensis*.

Wang Y, Yin H, Lv X, Wang Y, Gao H, Wang M

Abstract

A water-soluble polysaccharide (CPS-2), isolated from the cultured *Cordyceps sinensis*, was obtained by hot-water extraction, anion-exchange and gel permeation chromatography. Its structural characteristics were investigated by PMP pre-column derivation, periodate oxidation, methylation analysis, FTIR and NMR spectroscopy. CPS-2 was found to be mostly of alpha-(1-->4)-D-glucose and alpha-(1-->3)-D-mannose, branched with alpha-(1-->4,6)-D-glucose every twelve residues on average. CPS-2 had a molecular weight of 4.39×10^4 Da. The protective effect of CPS-2 on the model of chronic renal failure was established by fulgerizing kidney. The changes in blood urea nitrogen and serum creatinine revealed that CPS-2 could significantly relieve renal failure caused by fulgerizing kidney.

Effect of cordyceps sinensis extract on Klotho expression and apoptosis in renal tubular epithelial cells induced by angiotensin II

Tang R, Zhou Q, Shu J, Tang T, Ao X, Peng W, Zhang Y.

Abstract

OBJECTIVE:

To investigate the effect of cordyceps sinensis (CS) extract and losartan (Los) on the expression of Klotho (Kl), P53, P21, and apoptosis in renal tubular epithelial cell NRK-52E induced by angiotensin II (Ang II), and to elucidate its therapeutical mechanism in Ang II induced renal tubular epithelial cell apoptosis.

METHODS:

NRK-52E cells were incubated with CS with or without Ang II for 24 hours. Experimental groups were divided according to the increasing concentrations of CS:0 (serving as controls), 5, 10, 20, 40, and 80 mg/L. The optimal concentration of CS was selected and cells were divided into 5 groups: controls, Ang II (1×10^{-8} mol/L), Ang II (1×10^{-8} mol/L)+CS (40 mg/L), Ang II (1×10^{-8} mol/L)+Los (1×10^{-5} mol/L), and Ang II (1×10^{-8} mol/L)+CS (40 mg/L)+Los (1×10^{-5} mol/L). After 24 hours, cell proliferation was evaluated by MTT assay. The mRNA and protein expression of Kl, P53 and P21 were measured by RT-PCR. Activity of caspase-3 was evaluated by caspase-3 activity assay Kit. Cell apoptosis was determined by Annexin V-FITC/PI double staining and flow cytometry.

RESULTS:

Certain concentrations of CS promoted the proliferation of NRK-52E cells and increased cells proliferation inhibited by Ang II ($P < 0.01$ or $P < 0.05$). Ang II significantly down-regulated the mRNA and protein expression of Kl, and up-regulated the levels of P53 and P21. Caspase-3 activity and apoptotic rates were decreased, too (all P values < 0.01). CS or/and Los significantly increased the expression of Kl mRNA and protein down-regulated by Ang II, decreased P53 mRNA and protein expression, P21 mRNA and protein expression, and inhibited caspase-3 activity and apoptotic rates (all P values < 0.05). No cooperative effects were observed in the two drugs ($P > 0.05$).

CONCLUSION:

CS can increase the expression of Kl down-regulated by Ang II, decrease P53 and P21 expression and caspase-3 activity, and reduce Ang II induced NRK-52E cell apoptosis, which may be part of its mechanism of the protective effects on hypertensive renal damage.