The effect of Dipyrrone and Scrophularia Striata on invasion inhibition and apoptosis induction in HepG2 cells

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Abstract: Scrophularia is a local plant, genus of the family Scrophulariaceae, which is used as conventional method for the treatment of erythema, fever, inflammation of skin, wounds, different types dermatitis and cancers. Dipyrrone is a medicine of the Pyrazolone group, an old-fashioned, used in 1992 because of analgesic, antipyretic and antispasmodic actions. Since it has got side effects such as leukocyte function defect which can lead to leukocyte programmed cell death (apoptosis).

The assessment of the effect of Dipyrrone and Scrophularia extract on the invasion inhibitory effect and the programmed cell death in hepatocellular carcinoma.

The methods of this assessment are as follows. Culture of hepatocellular cells, preparation of Petroleum Ether, Chloroformic, Ethyl Acetate and methanol fraction of Scrophularia extract. MTT and Trypan Blue exclusion assay, Flow cytometry based on Annexin V/PI and invasion assay were performed.

Cytotoxicity of Chloroformic and ethyl acetate fraction of this extract were assessed. Results showed that apoptosis occurs in group which is treated by drug and extract in comparison to the control group. On the other hand, in non-treated group, cancerous cells can migrate through matrigel showing possible invasion of these cells which inhibited either by extracts or dipyron.

Dipyrrone and the extract of Scrophularia could have cytotoxic and anti-inflammatory and anti-oxidative effects on HepG2 cells as well as inhibit invasion of these cells, which can be beneficial in treatment of hepatocellular carcinoma cancers.

Keyword: Dipyrrone, Scrophularia, Hepatocellular carcinoma, cytotoxicity