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# Effects of *Scrophularia striata* extracts on isolated rat hepatocytes

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**Background and Aims:** Our experiment was planned to evaluate the in vitro effect of different extract from Scrophularia striata on the isolated hepatocytes of rat.
**Methods:** Hepatocytes were isolated from male Spragus-Dawley rats by a two stage collagenase perfusion method. Methanolic extract also was fractionated by solid phase extraction. Anti oxidant activity of extracts and fractions were tested by 2,2- Diphenyl-1-picrylhydrazyl prob. Cytotoxicity, mitochondrial membrane potential, formation of Reactive Oxygen Species (ROS) , and lipid peroxidation were determined.
**Results:** It was found that methanolic, dichloromethane and n-hexane extract of Scrophularia striata caused cell death, increase in lipid peroxidation, formation of ROS and mitochondrial membrane potential collapse in isolated rat hepatocyt. The antioxidant activity test by 2, 2- Diphenyl-1- picrylhydrazyl showed that the methanolic extract had significant radical scavenging activity. Therefore to evaluate the exact effect of this extract, it was fractionized and the experiments repeated for each fraction. The results showed that two fractions obtained from methanolic extract could prevent cell death, ROS formation, and lipid peroxidation induced by copper.
**Conclusions:** The methanolic, dichloromethane and n-hexane extracts from Scrophularia striata showed toxic effect when added to cell suspension. These effects can be attributed to toxic chemicals such as glycoside terpenoids present in them.The protective effects of these fractions can be to the distribution of antioxidant chemicals such as different flavonoids in them. More studies for identifying the exact chemicals responsible for protective effects of fractions obtained from methanolic extract is needed. And methods such as high performance liquid chromatography (HPLC) are suggested for identifying such protective molecules.

**Keywords:** Antioxidant activity; Extracts; *Scrophularia striata*; Freshly isolated hepatocyte; Oxidative stress