

A search for hepatoprotective activity of aqueous extract of *Cucurbita moschata* in isolated rat hepatocytes

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Background and Aims: The fruit of *Cucurbita moschata* has been widely accepted as a dietary constituent in different areas of the world. It was shown that *Cucurbita moschata* has antioxidative activity. It has been also reported that this fruit is an important source of provitamin A. Due to antioxidant and free radical scavenging activities of *Cucurbita moschata*, we planned to study liver protective (hepatoprotective) effect of aqueous extract of *Cucurbita moschata* fruit against cytotoxicity and reactive oxygen species (ROS) production, using accelerated cytotoxicity mechanisms screening (ACMS) techniques in isolated Sprague–Dawley rat hepatocytes as a cellular model. These cells are the most similar mammalian cells to human liver hepatocytes.

Method: Fresh fruits of *Cucurbita moschata* were cleaned, and then dried in shade at room temperature and aqueous extract of *Cucurbita moschata* was obtained. Hepatocytes were obtained by collagenase perfusion of the liver and viability was assessed by plasma membrane disruption determined by trypan blue (0.2 w/ v) exclusion test. To determine the rate of hepatocyte reactive oxygen species (ROS) generation induced by cumene hydroperoxide, dichlorofluorescein diacetate (DCFH-DA) was added to the hepatocytes. The latter then reacts with ROS to form the highly fluorescent dichlorofluorescein (DCF), which effluxes the cell. The fluorescence intensity of DCF was measured.

Results: In the current study, the antioxidant activity of *Cucurbita moschata* was evaluated in isolated rat hepatocytes and we tried to figure out whether *Cucurbita moschata* could protect hepatocytes against cumene hydroperoxide (CHP) induced-cytotoxicity and ROS formation. Aqueous extract of *Cucurbita moschata* fruit prevented CHP induced hepatocyte membrane lysis as well as ROS formation.

Conclusions: These findings demonstrated that *Cucurbita moschata* extract acts as a hepatoprotective and antioxidant agent against CHP-induced hepatotoxicity. It was concluded that *Cucurbita moschata* can be considered a potential candidate to protect the liver against the deleterious effect of oxidative stress.