

## Hepatoprotective activity of *Cucumis sativus* against cumene hydroperoxide induced-oxidative stress

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**Background and Aims:** The fruit of *Cucumis sativus* a plant that has long been used in oriental medicine for its anti inflammatory, antidiabetic, and abortifacient effects. *Cucumis sativus* belonging to Cucurbitaceae family is commonly known as Cucumber. Based on its traditional use the fruit of the plant was selected for free radical scavenging and antioxidant activities. In this study we planned to study hepatoprotective effect of aqueous extract of *Cucumis sativus* 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.

**Method:** Fresh fruits of *Cucumis sativus* were cleaned, and then dried in shade at room temperature and aqueous extract of the fruit 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 present study, the antioxidative potential of *Cucumis sativus* was evaluated in isolated rat hepatocytes and we tried to figure out whether *Cucumis sativus* could protect hepatocytes against cumene hydroperoxide (CHP) induced-cytotoxicity and ROS formation. Our results showed that when isolated hepatocytes were incubated with CHP, there was an initial rapid increase in ROS formation, which was prevented by aqueous extract of *Cucumis sativus* fruit.

**Conclusions:** Our results showed that aqueous extract of *Cucumis sativus* acts as a hepatoprotective and antioxidant agent against CHP-induced hepatotoxicity suggesting that antioxidants and radical scavenging components of *Cucumis sativus* fruit extract can easily cross the cell membrane and cope with the intracellular ROS formation.