



Section E2

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Hepatoprotective activity of *Atalantia ceylanica* against ethanol induced hepatotoxicity on HepG2 human liver cells

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Chronic ethanol consumption is a serious medical problem, as it has become a common beverage in social gatherings worldwide. Over consumption of ethanol increases adverse health effects such as chronic liver diseases. Herbal medicine has been used in the treatment of chronic liver diseases. An aqueous extract of *Atalantia ceylanica* (Yakinaran) was prepared from tender leaves according to the procedure followed by Ayurvedic practitioners in Sri Lanka, and analyzed for phytochemical constituents, antioxidant and hepatoprotective activities *in vitro*. Total phenolic content (TPC) and total flavonoid content (TFC) were determined by the Folin-Ciocalteu method and Aluminium Chloride colorimetric assay, respectively. Hydroxyl radical and 1,1-Diphenyl-2-picryl-hydrazyl (DPPH) radical scavenging activities were determined to evaluate antioxidant activities of plant extract. The cytotoxic range of ethanol and *A. ceylanica* was evaluated to determine optimum concentrations needed for evaluation of hepatoprotective activity using hepatocellular carcinoma (HepG2) cells. Cell damage was induced by ethanol (3%). *A. ceylanica* was co-exposed with ethanol to investigate the hepatoprotective activity against ethanol induced cytotoxicity. The 3-[4,5-dimethylthiazol-2-yl]-2,5-diphenyltetrazolium bromide (MTT) assay was used to evaluate the cell viability for all experiments. The extraction yield of *A. ceylanica* was 10.8±0.9 %. TPC and TFC were 4.1±0.4 gallic acid equivalent w/w% and 7.8±0.9 (-)-epigallocatechin gallate equivalent w/w%, respectively. The EC₅₀ values for DPPH and Hydroxyl radical scavenging activity were 311.9±37.5 and 48.4±4.1 µg/mL. No toxicity was found on cells treated with plant extract alone (EC₅₀> 3500 µg/mL). The cell viability was 40.0% relative to the untreated cells for ethanol induced toxicity and it significantly increased (p<0.05) with co-exposure of the plant extract at concentrations between 15-45 µg/mL. The highest increase was observed at 15 µg/mL concentration of the plant extract with a percentage cell viability of 67.2%. *A. ceylanica* aqueous extract has the capability to act as an effective hepatoprotective agent against ethanol induced cell damage under *in-vitro* conditions.

Keywords: Hepatoprotective, *Atalantia ceylanica*, ethanol, HepG2

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