

Role of *Cassia angustifolia* on hepatic toxicity in Wistar rats

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Background. *Cassia angustifolia* L. (senna) is traditionally used as a laxative for the short-term treatment of acute constipation and as a purgative before diagnostic endoscopy. Among several adverse reactions in literature, hepatotoxicity (Sonmez et al., *Gastroenterol. Belg.*, 2005;68:385-7) and portal vein thrombosis (Soyuncu et al., *Clin. Toxicol. Phila*, 2008;46:774-7) have been reported.

Present study was aimed to evaluate the long-term effects of *C. angustifolia* by both in vivo (oral administration to rats) and in vitro (liver cell cultures) approaches.

Materials and methods. In vivo, experiments were performed in Wistar rats, after oral administration of senna leaf extract (12 and 58 mg/kg/day) for 4 or 8 weeks. Serum was used for biochemical analysis. Liver samples were used for hystomorphological and immunohistochemical examination (Gaudio E. et al., *Gastroenterology*. 2006;130:1270-82) along with the determination of oxidative stress parameters. Cytotoxicity was assessed on Buffalo normal Rat Liver cell line (BRL-3A) by the Trypan blue assay and the MTT reduction method after 24 h of exposure.

Results. In Wistar rats the extract did not induce any significant change in animal body weight, food and water consumption, enzyme activities, hystomorphological hepatic characteristics, levels of reduced glutathione, and MDA formation, at either time or dosage level. In BRL-3A cells the substance induced concentration-dependent cytotoxicity.

Conclusions. *C. angustifolia*, at doses about 10 and 50 times higher than those used in humans (during a lapse of time corresponding to a chronic administration) does not affect liver morphology and hepatic function indices in rats. In vitro senna extract is cytotoxic at concentrations at least 2000 fold higher than those obtainable in vivo. Nevertheless, in humans the safety of *C. angustifolia* should be further monitored, in terms of patient-related factors.

Keywords: Hepatotoxicity, Senna, *Cassia angustifolia*, liver function, BRL-3A cells