



# Bangladesh Journal of Pharmacology

Volume: 10; Number 1; Year 2015



Cite this article as: Aftab-Ullah, Ahmad M, Ahmad T, Naseer F. Hepatoprotective activity of *Sonchus asper* in paracetamol-induced hepatic damage in rabbits. Bangladesh J Pharmacol 2015; 10: 115



## Letter to the Editor

### Hepatoprotective activity of *Sonchus asper* in paracetamol-induced hepatic damage in rabbits

Sir,

Hepatoprotective activity of *Sonchus asper* against carbon tetrachloride-induced injuries in male rats was reported (Khan et al., 2012). We conducted this study to confirm the hepatoprotective activity of aqueous methanolic extract of *S. asper* in rabbits against paracetamol-induced hepatotoxicity. The whole plant was collected from Bahawalpur, Pakistan and evaluated its 8 days *in vivo* activity. Rabbits were divided into 5 groups (2 per group) for acute toxicity study. Group 1 receive none whereas Group 2-5 received extract in different doses and the mortality rate was observed for 24 hours. The highest dose did not kill any rabbit. For hepatotoxicity, rabbits were divided into 5 groups (10 per group). Group I received none whereas Group II was negative control (paracetamol 2 g/kg/day in divided doses i.e. 400 mg/kg at 0, 6, 12, 18 and 24 hours), Group III: standard control (silymarin 100 mg/kg/day p.o.), Group IV received 500 mg/kg/day, Group V received 750 mg/kg/day. Paracetamol was administered after 30 min of extract on 7th day to all groups except I (Arshad et al., 2010). After 24 hours rabbits were anaesthetized and blood samples were collected (Ahmad and Eram, 2011). Biochemical parameters had depicted those alterations (Table I). Histopathological studies also supported them. When paracetamol is administered in lethal doses it blocks the glutathione production and its binding to N-acetyl-p-benzoquinone imine, then extra free paracetamol metabolite binds to cellular proteins and cause hepatocellular damage and elevation in serum enzymes (He and Aoyama, 2003). Extract in 500 and 750 mg/kg had restored these levels significantly due to the presence of phyto constituents like saponins, tannic acid, flavonoids and proanthocyanidins (Hussain et al., 2010). Flavonoids block lipid peroxidation and

proanthocyanidins increases the stability of cell membrane due to their high antioxidant activity (Balasundram et al., 2000). In conclusion: aqueous methanolic extract of *S. asper* has potent hepatoprotective activity upon paracetamol hepatic damage more appropriately at a dose of 750 mg/kg.

**Aftab-Ullah<sup>1</sup>, Mahmood Ahmad<sup>1</sup>, Taseer Ahmad<sup>2</sup> and Faiza Naseer<sup>3</sup>**

<sup>1</sup>Faculty of Pharmacy, the Islamia University of Bahawalpur, Pakistan; <sup>2</sup>Shifa College of Pharmaceutical Sciences, Shifa Tameer-e-Millat University, Islamabad, Pakistan; <sup>3</sup>Department of Pharmacy, Govt. College, University Faisalabad, Pakistan.

Corresponding author: drtasir2011@gmail.com

#### References

- Ahmad M, Eram S. Hepatoprotective studies on *Haloxylon salicornicum*: A plant from cholistan desert. Pak J Pharm Sci. 2011; 24: 377-82.
- Arshad AN, Kausar M and Savita DP. Hepatoprotective effect of *Cocculus hirsutus* against carbon tetrachloride induced liver damage in albino Wistar rats. J Pharmacol Toxicol. 2010; 1: 1-7.
- Balasundram N, Sundram K and Samman S. Phenolic compounds in plants and agro industrial byproducts: Antioxidant activity, occurrence, and potential uses. Food Chem 2000; 99: 191-203.
- He G, Aoyama Y. Effects of adding some dietary fibers to cystine diet on activities of liver antioxidant enzymes and serum enzymes in rats. Biosci Biotech Biochem. 2003; 67: 617-21.
- Hussain K, Nisar MF, Majeed A, Nawaz K, Bhatti KH. Ethno-medicinal survey for important plants of Jalalpur Jattan, District, Gujrat, Punjab, Pakistan. Ethnobot Leaflets. 2010; 14: 807-25.
- Khan RA, Khan MR, Sahreen S, Shah NA. Hepatoprotective activity of *Sonchus asper* against carbon tetrachloride-induced injuries in male rats: a randomized controlled trial. BMC Compl Alternative Med. 2012; 12: 90.

Table I: Biochemical parameters after *Sonchus asper* administration

Groups	ALT (IU/L)	AST (IU/L)	Alkaline phosphatase (IU/L)	Total bilirubin (mg/dL)	Liver damage
Normal control	65.3 ± 2.9	49.2 ± 1.8	218.1 ± 3.7	0.7 ± 0.1	0
Negative control	362.5 ± 5.4	355 ± 5.1	335.3 ± 6.2	1.4 ± 0.0	3
Standard control (silymarin)	186.0 ± 4.4	232.3 ± 3.4	200.3 ± 4.3	0.8 ± 0.0	1
Extract (500 mg/kg) plus paracetamol	244.9 ± 4.4	253.8 ± 5.2	256.1 ± 4.6	1.2 ± 0.0	1
Extract (750 mg/kg) plus paracetamol	191.8 ± 3.8	201 ± 5.4	207.4 ± 6.4	0.9 ± 0.0	1

Values are represented as Mean ± S.E.M. (n=10). 0 = Normal, +1 = Mild, +2 = Moderate and +3 = Severe