Latin American Journal of Pharmacy
(formerly *Acta Farmacéutica Bonaerense)*
Lat. Am. J. Pharm. **29** (4): 520-5 (2010)

Short Communication

Received: July 25, 2009
Accepted: October 30, 2009

Analgesic and Neuropharmacological Effects of *Xanthium indicum* Leaves

Raushanara AKTER [1]†, S.M. Raquibul HASAN [1]†, Md. Mokarram HOSSAIN [1]†, Mariam JAMILA [2], Md. E.H. MAZUMDER [3]*, Md. Sohel RANA [3] & Shafiqur RAHMAN [4]

[1] *Department of Pharmacy, Stamford University Bangladesh, Dhaka-1217, Bangladesh*
[2] *Department of Pharmacy, Bangladesh University, Dhaka-1207, Bangladesh*
[3] *Department of Pharmacy, Jahangirnagar University, Dhaka-1342, Bangladesh*
[4] *Department of Pharmaceutical Sciences, College of Pharmacy, South Dakota State University, Brookings, SD 57007,USA*

SUMMARY. The present study investigated analgesic and some neuropharmacological effects of hydromethanolic extract of the leaves of *Xanthium indicum* Koenig in mice models. The analgesic activity was evaluated using hot plate ant tail immersion methods, and acetic acid-induced writhing test. The neuropharmacological effects were determined using hole-cross, open field, and thiopental-induced sleeping time tests. The extract, at the doses of 100, 200 and 400 mg/kg, produced a dose dependent and significant ($p < 0.05$-0.001) increase in pain threshold in hotplate test. However, in tail immersion method, the extract at 200 and 400 mg/kg dose levels displayed a significant ($p < 0.05$-0.001) increase in tail withdrawal reflex in a dose dependent manner. In either case, maximum analgesia was observed at 90 min after administration of test drugs and the standard drug Nalbuphine. In acetic acid-induced writhing test, the extract at all doses produced a significant ($p < 0.001$) decrease in the number of writhes exhibited by the mice following intraperitoneal injection of acetic acid; the result was dose dependent and comparable to the reference drug Diclofenac-Na. Moreover, The extract displayed dose dependent suppression of locomotor activity as well as exploratory behavior in hole-cross and open field tests, and exerted sedative action through prolongation of thiopental-induced sleeping time. The results of the study supports that the *Xanthium indicum* leaves possesses analgesic and some neuropharmacological effects which might be linked to inhibition of both central and peripheral mechanisms of pain and justifies its use in folk medicine for the management of pain and inflammation.

KEY WORDS: Xanthium indicum, Analgesic activity, Neuropharmacological effects, Medicinal plant.

* Author to whom correspondence should be addressed. E-mail: mhoq4440@mail.usyd.edu.au.
† Equal contribution

ISSN 0326-2383