

Antinociceptive and anticonvulsant activities of essential oils of *Zanthoxylum armatum*

Muhammad Ibrar¹, Naveed Muhammad², Barkatullah¹, Haroon Khan³, Faryal Jahan⁴, Nadeem Ashraf⁵

¹Department of Botany, University of Peshawar, Peshawar, Pakistan.

²Department of Pharmacy, University of Peshawar, Peshawar, Pakistan.

³Gandhara College of Pharmacy, Gandhara University, Peshawar, Pakistan.

⁴Hamdard Institute of Pharmaceutical Sciences, Hamdard University, Islamabad Campus, Pakistan.

⁵Pharmacology Department, HEJ, Research Institute of Chemical and Biological Sciences, University of Karachi, Karachi, Pakistan.

*Corresponding Author: hkdr2006@gmail.com

Received: 24 April 2012, Revised: 10 May 2012, Accepted: 11 May 2012

Abstract

Patient compliance is the primary goal in the effective management of painful conditions. In clinical practice, synthetic analgesics showed multiple unwanted effects. Various research groups around the world are focusing on the discovery of effective natural analgesic. The present study deals with the screening of essential oils of the leaves of *Zanthoxylum armatum* (ZEO) for acute toxicity, antinociceptive and anticonvulsant activities. ZEO was found substantially safe up to the dose of 2000 mg/kg i.p. in antinociceptive test. When challenged against acetic acid induced writhing, pain amelioration was observed in a dose related manner. Maximum effect (58.41%) was observed at 400 mg/kg. In formalin induced noxious animal, ZEO significantly relieve the pain in both neurogenic (first phase) and inflammatory (late phase) phases. Maximum effect in early and late phases was 49.08% and 54.02% at 400 mg/kg respectively. Like acute toxicity test, ZEO was found free of convulsive effects in pentylenetetrazole (PTZ) induced anticonvulsant. This study provided scientific validation for the traditional uses of plant in painful condition with considerable safety profile.

Keywords: *Zanthoxylum armatum*; essential oil; analgesic; anticonvulsant

Introduction

Zanthoxylum armatum (Dambara) is a small xerophytic tree or shrub belongs to family Rutaceae. It grows wild in foothills starting from about 800 m up to 1500 m in Malakand, Swat, Dir, Hazara, Buner, Muree hills and Rawalpindi (Shinwari et al., 2006). Fruits and seeds of the plant are edible and used as potherb species. The plant is used for the treatment of