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Antinociceptive evaluation of the aqueous bark extract of *Zanthoxylum zanthoxyloides* (Lam.) Zepern. and Timler (Rutaceae) on albino wistar rats

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ABSTRACT

Objectives: This study aimed to investigate the phytochemistry and the analgesic activity of the aqueous bark extract of *Zanthoxylum zanthoxyloides* (AZZ) on albino Wistar rats.

Methodology and Results: Phytochemical screening was done using colorimetric reactions and precipitations. Writhing, glutamate, and hot plate tests were used for antinociceptive assessment. The animals orally were given the extract (400 and 800 mg/kg), and standard drugs. The phytochemical revealed the chemical component like alkaloids and flavonoids. The extract displayed significant antinociceptive activity ($p < 0.05$). At 400 and 800 mg/kg, the extract reduced the writhing with 33.51% and 54.74% respectively. Licking reduction was observed after 15 and 20 minutes of glutamate injection in groups that received extract at 800 and 400 mg/kg, respectively. For the hot plate test, the extract effect was obtained from the 30th to the 90th minutes.

Conclusions and application of findings: This study findings corroborate the traditional use of *Zanthoxylum zanthoxyloides* species. This activity may be due to the presence of some chemical groups confirmed by the phytochemical screening such as flavonoids and alkaloids. The mechanism for the antinociceptive activity could be due to the inhibition of the synthesis of some inflammatory mediators such as prostaglandins and nitric oxide (NO). The plant *Z. zanthoxyloides*, particularly its bark, could be a potent source for the development of new analgesic drugs. Further researches about the safety, and characterization of its effective ingredient are needed.

Keywords: Albino Wistar rats, *Zanthoxylum zanthoxyloides*, bark, folk medicine, antinociceptive.