OPEN ACCESS Journal of Biological Sciences

ISSN 1727-3048
DOI: 10.3923/jbs.2018.468.474

Research Article
Anti-hyperuricemic, Uricosuric and Xanthine-oxidase Inhibitory Activities of Watermelon Powder in a Rat Gout Model

Basim Jasim Hameed, Falah Hassan Shari and Usama Hamid Ramadhan

Department of Clinical Laboratories Sciences, College of Pharmacy, University of Basrah, Basrah, Iraq

Abstract

Background and Objective: Gout is a common metabolic disorder around the world. It characterized by elevation of uric acid levels in the blood, leading to increase the deposition of urate crystals in the joints and kidneys. The current study was carried out to investigate the efficacy and mechanism action of watermelon powder as antihyperuricemic agent. **Materials and Methods:** Enzyme assay was done by using bovine milk xanthine oxidase (XO). The XO inhibitory activity *in vitro* was performed by using different doses of watermelon powder and the degree of XO inhibition was expressed as IC_{50}. The antihyperuricemic and uricosuric activity of watermelon were tested in the potassium oxonate-induced hyperuricemic rats for seven consecutive days of oral treatment of 25, 50 and 100 mg kg^{-1} doses. **Results:** The results of the study revealed that the watermelon has a moderate activity of XO inhibition with IC_{50} =95.24 μg mL^{-1}. In addition, these results showed that all doses of watermelon powder were able to significant reduce serum uric acid levels in the hyperuricemic rats. Moreover, the results of uricosuric activity assay showed that the watermelon significantly increased the urinary excretion of uric acid. **Conclusion:** The watermelon powder showed significant effects on the evaluated models and therefore it may be promising agent for the treatment of gout since it possesses a moderate xanthine oxidase inhibitory and a potent of both antihyperuricemic and uricosuric effects.

Key word: Watermelon powder, xanthine oxidase, antihyperuricemic, uricosuric, gout, hyperuricemic, urate crystals

Received: September 01, 2018 Accepted: September 27, 2018 Published: October 15, 2018

Citation: Basim Jasim Hameed, Falah Hassan Shari and Usama Hamid Ramadhan, 2018. Anti-hyperuricemic, uricosuric and xanthine-oxidase inhibitory activities of watermelon powder in a rat gout model. J. Biol. Sci., 18: 468-474.

Corresponding Author: Basim Jasim Hameed, Department of Clinical Laboratories Sciences, College of Pharmacy, University of Basrah, Basrah, Iraq

Competing Interest: The authors have declared that no competing interest exists.

Data Availability: All relevant data are within the paper and its supporting information files.