

Original Paper

## Effect of hexanic and hydroalcoholic extract of *Cannabis sativa* flowers on inflammatory paw edema in Rats

Farhadi Moghadam B (B.Sc)<sup>1</sup>, Fereidoni M (Ph.D)<sup>\*2</sup>, Asadollahi A (Ph.D)<sup>3</sup>

<sup>1</sup>M.Sc Student in Biology (Animal Physiology), Rayan Center for Neuroscience and Behavior, Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran. <sup>2</sup>Associate Professor, Rayan Center for Neuroscience and Behavior, Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran. <sup>3</sup>Assistant Professor, Rayan Center for Neuroscience and Behavior, Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran.

---

### Abstract

**Background and Objective:** Cyclooxygenase 1 and 2 activities on arachidonic fatty acids of cell membrane produces prostaglandins which involved in inflammatory processes. This study was done to evaluate the effect of hexanic and hydroalcoholic extract of *Cannabis sativa* flowers on inflammatory paw edema in rats.

**Methods:** In this experimental study, 56 male Wistar rats were allocated into the control, sham, sodium salicylate (300mg/kg/bw) and hydroalcoholic extract of heated flowers in 1, 10 and 50 mg/kg/bw, hydroalcoholic extract of unheated flowers in 50mg/kg/bw and hexanic extract of heated flower in 50mg/kg/bw, intraperitoneally. 30 minutes after injection, inflammatory edema volume due to sub plantar injection of formalin (0.05 ml, 2.5%) measured using plethysmometric method.

**Results:** Intraperitoneally injection of 50mg/kg/bw, of hydroalcoholic and hexanic extracts of heated flowers significantly reduced in inflammatory paw edema induced by formalin ( $P<0.05$ ). Also, 50mg/kg/bw, hydroalcoholic extract of unheated flowers reduced the inflammatory paw edema in comparison with heated extracts ( $P<0.05$ ).

**Conclusion:** Hydroalcoholic extract of heated flowers decreased inflammation-induced paw edema in dose-dependent manner. The extract of unheated flowers, leads to more reduction of the inflammatory paw edema in comparison to heated flower extract, it can be due to carboxylated *cannabinoid* present in the hydroalcoholic extract of unheated flowers.

**Keywords:** *Cannabis sativa*, Edema, Lower limb, Rat

---

\* Corresponding Author: Fereidoni M (Ph.D), E-mail: fereidoni@um.ac.ir

Received 10 Sep 2014

Revised 4 Mar 2015

Accepted 20 Apr 2015