



## **Anti-inflammatory effects of ethanol extracts of *Hippomarathrum microcarpum* (M. Bieb.) B. Fedtsch (horse fennel) in laboratory rats**

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**Background and objectives:** Apiaceae family is one of the largest plant families with wide distribution all around the world. The genus *Hippomarathrum* has 28 species around the world among them *H. microcarpum* is outspread in the north, northwest, west and central of Iran, and also Turkey, Caucasus and Iraq. In a previous study, two coumarins (osthole and isoimperatorin) and one sterol ( $\beta$ -sitosterol) have been isolated and identified from the plant ethyl acetate extract. A study showed that this combination has inhibitory effect on COX-2 and Lipooxygenase-5 and inhibits the production of Leukoterine CL1 and therefore may provide a basis for the production of new anti-inflammatory drugs. **Methods:** The extraction was carried out using 70% ethanol through maceration. To investigate the anti-inflammatory effects, the edema method was used in the paw of the male rats using carrageenan and the rate of inflammation was measured by digital caliper. At the end of the experiment, the leg of mice were cut off and sent to the histopathologic laboratory for pathological tests. **Results:** In all doses of the extract, at 1, 2, and 3 h after infusion, the inflammation significantly decreased ( $p < 0.001$ ). Also, at the second hour of the study, the highest reduction of inflammation was observed and the extract resulted in a greater reduction in inflammation compared to diclofenac. **Conclusion:** The results showed that *H. microcarpum* increased the anti-inflammatory effects at high doses and also decreased the inflammation rate more than diclofenac. Since compounds like osthole and isoimperatorin are present in the plant, the anti-inflammatory effect of the *H. microcarpum* can be considered as the presence of such compounds which needs to be further investigated.

**Keywords:** anti-inflammation, *Hippomarathrum microcarpum*, hydroalcoholic extract, laboratory male rat