Protective effect of *Ocimum basilicum* essential oil against acetic acid-induced colitis in rats

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Background: *Ocimum basilicum* L. has been traditionally used for treatment of inflammatory bowel disease in Iran. This study investigates the ameliorative effect of *Ocimum basilicum* essential oil on an acetic acid-induced colitis model in rats. **Methods:** Male rats divided into several groups. The sham group received normal saline (1 ml) without induction of colitis; control group received vehicle (1 ml, 0.2% Tween 80) two hours before induction of colitis; dexamethasone group received dexamethasone (2 mg/kg) two hours prior to induction of colitis. The test groups received *Ocimum basilicum* essential oil at doses of 100, 200, and 400 ml/kg two hours before induction of colitis. All treatments were performed for the following 5 days, orally. The colon was assayed macroscopically and histopathologically, and myeloperoxidase activity was measured in colon. The essential oil of *Ocimum basilicum* was also analyzed by gas chromatography-mass spectrometry (GC/MS). Group differences were calculated by parametric one-way analysis of variance with Tukey's post-hoc test. Nonparametric data were analyzed using Kruskal-Wallis followed by Mann-Whitney U test. For all tests, differences with values of $P < 0.05$ were considered significant.

Results: *Ocimum basilicum* essential oil at two doses (200 and 400 ml/kg) significantly ameliorated wet weight/length ratio of colonic tissue compared to control group ($P < 0.05$). Higher doses of essential oil (200 and 400 ml/kg) significantly reduced ulcer severity, ulcer area, and ulcer index. On the other hand, histological examination revealed the diminution of total colitis index as a marker for inflammatory cell infiltration in the colonic segments of rats treated with *Ocimum basilicum* essential oil (200 and 400 ml/kg). The increased level of myeloperoxidase was significantly decreased after treatment with the essential oil of *Ocimum basilicum* (200 and 400 ml/kg).

Conclusions: These results suggest that *Ocimum basilicum* exerts protective effect against acetic acid-induced colitis in rats.