

## Effects of *Carum carvi* L. (caraway) extract and essential oil on TNBS-induced colitis in rats

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**Background and Aims:** *Carum carvi* L. (Apiaceae family) or caraway is a common household plant grown around the world including Iran. Caraway fruits are used as flavoring agent in foods and beverages, and have various traditional uses in ethnomedicine. Anti-inflammatory, spasmolytic, antimicrobial, antioxidant, carminative and immunomodulatory properties of caraway suggest that it might exert beneficial effects on inflammatory bowel disease (IBD). Therefore, this study was carried out to investigate the effects of caraway hydroalcoholic extract (CHE) and its essential oil (CEO) in an immunological model of colitis in rats induced by trinitrobenzene sulfonic acid (TNBS).

**Methods:** Different doses of CHE (100, 200, 400 mg/kg) and CEO (100, 200, 400 ml/kg) were administered orally (p.o.) and also doses of CHE (100, 400 mg/kg) and CEO (100, 400 ml/kg) were given intraperitoneally (i.p.) to the separate groups of male Wistar rats (n=6). Administration of the doses started 6 h after induction of colitis and continued daily for 5 consecutive days. Wet colon weight/length ratio was measured and tissue damage scores as well as indices of colitis were evaluated both macroscopically and histopathologically.

**Results:** CHE and CEO at all doses tested were effective in reducing colon tissue lesions and colitis indices and the efficacy was nearly the same when different doses of plant fractions were administered p.o. or i.p. Administration of prednisolone (p.o., 4 mg/kg), Asacol® (mesalazine microgranules, p.o., 100 mg/kg) and hydrocortisone acetate (i.p., 20 mg/kg) as references were effective in reducing colon tissue injuries as well.

**Conclusions:** These data suggest that caraway fractions are both effective and possess anti-colitic activity irrespective of the dose and route of administration.

**Keywords:** Colitis; *Carum carvi* L.; Trinitrobenzene sulfonic acid (TNBS); Rats