

Protective effect of mesalamine, atorvastatin and hawthorn berries hydroalcoholic extract on experimentally-induced colitis in rats

H. Malekinejad^{1,*}, V. Safie-Irannajad¹, R. Hobbenaghi²

¹Department of Pharmacology & Toxicology, school of Veterinary medicine, Urmia University, Urmia, Iran

²Department of Pathology, school of Veterinary Medicine, Urmia University, Urmia, Iran

Background and Aims: This study carried out to investigate the protective effect of Hawthorn berries hydroalcoholic Extract (HBE) on acetic acid (AA)-induced colitis in rats.

Methods: Forty two adult Wistar rats assigned into 7 groups including control and test groups (n=6). The control animals received saline normal and the test animals pretreated with saline normal (Sham group), mesalamine (M, 50 mg/kg), atorvastatin (A, 20 mg/kg), HBE (H, 100 mg/kg), mesalamine and HBE (HM) and atorvastatin and HBE (HA) 3 days before colitis induction. Colitis was induced by administration of 1 ml acetic acid (4%) via polyethylene catheter intra-rectally in all test groups. The treatment regimens were continued for one week after colitis induction. All test compounds were administered through the gastric gavage.

Results: The body weight gain, myeloperoxidase activity, antioxidant status and histopathological examinations were performed to evaluate the protective effect of test compounds. AA administration resulted in a significant (P<0.05) body weight loss, while all test substances could significantly (p<0.05) recover the AA-decreased body weight gain. The myeloperoxidase activity and lipid peroxidation elevated in sham group, while the test compounds both in individual or in combination forms lowered both biomarkers. HBE and HBE alongside with mesalamin remarkably elevated the AA-induced total thiol molecules level reduction. The histopathological studies revealed that HBE could reduce the AA-induced inflammatory signs of edema, infiltration of neutrophils, and necrosis.

Conclusions: Our data suggest that the AA-induced colitis is likely related to local inflammatory reactions, which may attribute to elevation of myeloperoxidase activities and MDA formation in colon tissue. Moreover, the protective effect of HBE and atorvastatin in comparison to reference compound of mesalamine in individual but not in the combination form also is concluded. The histopathological protective effect of HBE may attribute to its antioxidant property.

Keywords: Acetic acid induced colitis; Antioxidant status; Hawthorn berries extract; Histopathological examinations; Myeloperoxidase activity