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Humulus lupulus AND XANTHOHUMOL ATTENUATE THE EFFECTS OF ULCERATIVE COLITIS IN RATS

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INTRODUCTION

Ulcerative colitis (UC) is characterized by diarrhea and weight loss and is associated with psychological disorders. Additionally, several adverse effects are associated with the available treatments. In this context, there has been an increase in research on natural products. *Humulus lupulus* L. is used to treat intestinal pain, inflammation, and insomnia. Among the phytoconstituents is xanthohumol (XN). However, despite the widespread popular use and pharmacological potential, studies in UC are scarce.

MATERIAL AND METHODS

This research is registered in Sisgen (A7D58CD), identified by its botanical number (63283), and approved by CEUA (006/2023). The hydroalcoholic extract of *H. lupulus* (HEL) was obtained by maceration with 70% ethanol for seven days. UC induction was performed with 3% DSS in the mice's water (n = 8 for each group) for six days. In parallel, the treatments for 12 days: Vehicle (Veh; distilled water); HEL (30, 100 or 300 mg/kg) and XN (1 mg/kg). Naive (N) will not be exposed to DSS. The disease activity index (DAI) was assessed daily, and from the 9th day onwards, the animals underwent behavioral assessments. On the 13th day, euthanasia occurred for the collection of the colon for histological (hematoxylin and eosin, PAS and alcian blue) and oxidative stress analysis, in addition to inflammation parameters: glutathione (GSH), catalase (CAT), superoxide dismutase (SOD), glutathione S-transferase (GST) and myeloperoxidase (MPO).

RESULTS

The DAI score indicated that the symptoms of UC began on day 5 in all groups except the N group. However, as expected, on days 6 to 9, the Veh group continued to experience progression in symptoms, while HEL (30, 100, or 300) and XN remained decreased. In addition, the length of the colon in the HEL and XN groups remained similar with N, whereas in the Veh group, there was a shortening. The HEL (30 or 100) also maintained GSH levels similar to N and differed from Veh. Histologically, the HEL (30, 100 or 300) and XN maintained glycoproteins at physiological levels. Also, it was possible to visualize a reduction in edema of lamina propria. Furthermore, EHL (100) and XN maintained GST levels compared to N and different from Veh. There were no significant changes in SOD, CAT, and MPO results.

CONCLUSIONS

HEL and XN exhibit promising intestinal protective activity, likely by maintaining antioxidant levels and reducing inflammation. These effects probably involve polyphenolic compounds pointed out in the extracts.

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