



EFFECTS OF *Trema micrantha* EXTRACT ON THE MURINE GASTROINTESTINAL TRACT

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INTRODUCTION

Trema micrantha, belonging to the Cannabaceae family, is traditionally used by local populations to treat snake envenomation, syphilis, and rheumatic diseases. This plant contains compounds such as vitexin, known for its antioxidant and anti-inflammatory properties, and cannabidiol, which is widely studied on gastrointestinal tract. In this way, the main goal of this project was to evaluate the effects of extracts obtained from different parts of *Trema micrantha* on gastrointestinal motility.

MATERIAL AND METHODS

Female swiss mice (n=5-6) were grouped into nine treatments: Vehicle (water plus tween), loperamide (4 mg/kg), and methanolic extracts from leaves (MEL), roots (MER), Flowers (MEFI), stems (MES), bark (MEBa), fruits (MEFr), and branches (MEBr) of *Trema micrantha* at 30 mg/kg. Thirty minutes later, phenol red was administered. Mice were euthanized 20 minutes afterward. Stomach contents were processed with NaOH and analyzed via spectrophotometry to assess gastric emptying. The small intestine was measured to determine intestinal transit percentages. In a separate isolated jejunum experiment, portions of the jejunum from euthanized mice were prepared in a Krebs nutrient solution, using an acetylcholine curve as the control for contraction. MER, MEBa, MEL and isolated vitexin were tested. Data were analyzed

using GraphPad Prism 9. Ethical approval was granted under CEUA no. 002/24.

RESULTS

The administration of MEL and MEFr at a dose of 30 mg/kg resulted in a significant reduction in gastric emptying compared to the control group. Additionally, the extracts MER, MEL, MEFI, and MEBa at 30 mg/kg decreased intestinal transit. Detailed analysis revealed that the MEL at 30 mg/kg had notable effects across all experiments, leading to further studies on gastric emptying and intestinal transit at doses of 3 mg/kg, 10 mg/kg, which also presented significantly effects. However, no dose-response effect was observed. Moreover, in the isolated jejunum experiments, the MEL demonstrated a statistically significant reduction in the contractile response to acetylcholine when compared to the vehicle, as well as vitexin at 300 µg/ml.

CONCLUSIONS

Different parts of *Trema micrantha* can influence gastrointestinal tract motility, with MEL particularly noted for significantly reducing gastric emptying and intestinal transit *in vivo*. The presence of the compound vitexin is believed to be a key factor in these effects, as it has been shown to reduce the contractility of the isolated jejunum.

ACKNOWLEDGMENTS

University of Vale do Itajaí. Graduate Program in Pharmaceutical Sciences.





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