

## Effects of sex hormones on the toxicity and healing of gastric ulcer in rats treated with *Eugenia punicifolia*, a medicinal plant from amazon region

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**Introduction:** *Eugenia punicifolia* (Kunth) DC. (Myrtaceae), popularly known as “pedra-ume-caá”, “pedra-ume”, “murta” or “muta”, is a shrub largely distributed in the Amazon region and Savanna biome. The leaves of this medicinal plant are popularly used as a natural therapeutic agent to treat inflammation, wounds and infections, among others diseases.

**Aim:** This study aims to evaluate the toxicity and the healing effect of the hydroalcoholic extract obtained from the leaves of *E. punicifolia* (HEEP).

**Material & Methods:** The evaluation of the healing of gastric ulcers induced by acetic acid in male and female (intact and ovariectomized) Wistar rats, were performed according to the method described by Okabe<sup>1</sup> modified by Konturek<sup>2</sup>. HEEP (125 mg/kg - lower effective dose of previous assays, dose-response curve), lansoprazole (30 mg/kg) or vehicle (saline – 0.9% - 10 mL/kg) were administered for the determination of the healing effects of the 14-day subacute treatment. All treatments were done orally once a day beginning one day after surgery. One day after the last treatment, the rats were killed and the stomachs removed. The gastric lesions were evaluated by pachymeter (mm<sup>2</sup>). To evaluate subacute toxicity, body weight was recorded daily throughout the experimental period, and the macroscopic analyses and weight of vital organs were compared between the three groups. Furthermore, blood (serum) was collected for analysis of biochemical parameters, including glucose, urea, creatinine, -glutamyl transpeptidase, aspartate aminotransferase and alanine aminotransferase, were measured using an automated biochemical analyzer. The results were expressed as mean±standard error of the mean of the parameters obtained and statistical significance was determined by ANOVA followed by Dunnett’s test (minimum level of significance:  $p < 0.05$ ).

**Results & Discussion:** In the model of acetic acid, the treatment with lansoprazole and HEEP were able to heal

significantly the gastric ulcer in male, intact females and ovariectomized females after 14 consecutive days (40.81% and 52.44% [male]; 84.21% and 85.22% [intact females]; 49.40% and 65.47% [ovariectomized females], respectively) of treatments when compared with control group (vehicle). Intact females when compared to males, showed a greater healing activity by treatment with HEEP (1.44x) or lansoprazole (1.84x) ( $p < 0.01$ ). The comparison of this same parameter in ovariectomized females and male did not present significant difference. Moreover, after 14 days of treatment with HEEP, we did not observe any death, changes in the body and organ weights, and in biochemical parameters of serum in any of the groups.

**Conclusion:** The oral treatment with hydro alcoholic extract from *Eugenia punicifolia* leaves at dose of 125 mg/kg did not cause toxicity after 14 consecutive days. The healed effect of this extract against the highly damaging gastric agent (acetic acid) is effective in male, intact females and ovariectomized females rats and we can observe an interference of the female sex hormones in the healing of the gastric lesion, since lesion area of intact females was smaller than in males and ovariectomized females.

### Speaker Biography

Larissa Lucena Périco possess a bachelor’s degree in Pharmacy from the Faculdades Adamantinenses Integradas (2010), a Master’s degree in Biological Sciences (Pharmacology) from the Institute of Biosciences of Botucatu at the São Paulo State University (UNESP) (2014). She is currently a doctoral student in Pharmacology and Biotechnology at Institute of Biosciences of Botucatu (UNESP), where she works on the following topics: Pharmacology of Natural Products, with an emphasis on medicinal plants with antiulcerogenic, anti-inflammatory, antinociceptive and antidiarrheal activity. Participates in the thematic project: “Standardized herbal medicines for the treatment of chronic diseases”. During the master’s degree she worked with animal models for gastroprotection. She currently works with animal models for the evaluation of hormonal effects on gastric ulcer healing. Her current project is titled: The role of the hydroalcoholic extract from the leaves of *Eugenia punicifolia* in experimental peptic ulcer disease: Characterization of anti-inflammatory, healing and antiapoptotic mechanisms of action.

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