

## Gastroprotective activity of the extract and fractions from leaves of "couve" (*Brassica oleracea* var. *acephala* DC) in chronic ulcer model

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**Introduction:** Gastric ulcer is a major cause of morbidity and mortality between diseases of the digestive tract. The genesis of the disease is associated with an imbalance of endogenous protective agents and aggressors of the gastric mucosa. *Brassica oleracea* var. *acephala* DC is known in Brazil as "couve", and is popularly used in the juice form for treatment of ulcers and gastritis. In a recent study, *B. oleracea* var. *acephala* showed significant gastroprotective activity by increase the pH and mucus production in the stomach. (Lemos et al. Journal of Ethnopharmacology 138: 503, 2011). Studies developed by our group have shown that the chloroform fraction (CF) and aqueous fraction (AF) contain metabolites which may be responsible for the antiulcer activity. **Objective:** This study aimed to evaluate the effects of *B. oleracea* var. *acephala* extract and two fractions in the chronic ulcer model. **Methods:** Swiss male mice (n=6) were orally treated with 100 mg/kg of *B. oleracea* var. *acephala* extract (EBO), chloroform fraction (CF), aqueous fraction (AF), cimetidine (100 mg/kg - positive control) or vehicle (saline, negative control) by seven days. The antiulcer activity was evaluated using the chronic induced ulcer model (Takagi et al., Japanese Journal of Pharmacology 19(3): 418, 1969), with some modifications. In addition, stomach tissue samples were subjected to histopathological analysis. All the procedures used in the present study were approved by the Animal Ethics Committee of UNIVALI (Protocol number 369/09a). **Results:** All treatments evaluated were able to decrease the lesions compared to negative control. However, EBO treatment was more effective than cimetidine on gastric lesions healing, and also more active than fractions. EBO treatment presented 84.96±2.07% of cure, cimetidine 82.94 ±2.92%, CF and AF 77.80±2.17% and 73.17±2.28%, respectively. In the histopathological study was possible to observe that treatment with EBO, CF or AF promoted a reduction of the thickness of the gastric mucosa when compared to the negative control, maintaining its thickness with values close to the thickness of a normal mucosa. However, the negative control showed the mucosal layer dilated, disorganized cell and absence of the main cells and the bottom of the gastric gland when compared to a normal tissue. In the negative control, the submuscular layer presented totally disorganized with presence of inflammatory infiltrate and fibroblasts. Treatment with EBO was able to revert this process. Similarly, treatment with CF, AF or cimetidine showed a better arrangement of the cellular structures in the gastric tissue. **Conclusion:** The research of secondary metabolites in foods is a promising field in the search of functional combinations, preventive or curative. Data herein obtained confirm the ethnopharmacological use of *B. oleracea* var. *acephala* to treat gastric ulcer, demonstrating that secondary metabolites may act in synergistic way.

**Keywords:** *Brassica oleracea*, Brassicaceae, ulcer, gastroprotection, chronic ulcer, cicatrization.

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