Evaluation of the swelling and erosion of mucoadhesive buccal tablets containing spray dried extract of *Achyrocline satureioides* (Lam.) D. C. for treatment of Herpes simplex

C. DAL PIZZOL¹, L. S. KOESTER², A. M. CAMPOS³

¹Programa de Pós Graduação em Farmácia, UFSC, ²Programa de Pós Graduação em Ciências Farmacêuticas, UFRGS

**Keywords:** *Achyrocline satureioides*; mucoadhesive tablet; Herpes simplex

**Introduction:** The antiviral activity of *Achyrocline satureioides* (marcela) was evaluated and was found promising against Herpes simplex Virus-1. Mucoadhesive tablets containing *A. satureioides* spray dried extract and different mixture of bioadhesive polymers were evaluated in order to obtain new formulations for buccal treatment of Herpes simplex.

**Experiment:** The matrices were prepared with different bioadhesive polymers as the carbopol, chitosan and hydroxypropylmethylcellulose. Thereby, the matrices were characterized with respect to swelling and erosion *in vitro*. The swelling properties and the erosion characteristics of tablets were evaluated by determination of % of Hydration and Matrix Erosion or Dissolution.

**Results/Discussion:** All formulations capture water in large quantities, with increased uptake as a function of time. However, the polymeric composition has a clear influence on the characteristics of swelling of the tablets. All formulations showed an initial rapid swelling of about 40% in the first hour of testing, with the exception of tablets containing chitosan, whose weight gain during this period was 50-60%. The maximum swelling was observed around 90%, also for the tablets containing the polymer blends of chitosan. All of the tablets swell constantly from the beginning to the end of the test obtaining the plateau. The polymers used in this study are very hydrophilic and can retain large amounts of water after the drying operation at 60 °C. Therefore, in some cases, the weight loss was not observed and / or obtained negative value erosion.

**Conclusion:** These studies demonstrated that the type and amount of polymer, whether alone or in combination, and the ratios between the polymers in the blends are parameters determining the characteristics of swelling, erosion. Likewise, we found that the swelling is inversely proportional to erosion, as well as the importance of ownership of hydrophilic polymers to characterize the swelling and erosion.