Antiviral activity of fractions of aqueous extract obtained from *Achyrocline satureioides* (Lam.) D.C. against *Western Equine Encephalitis* virus

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**Key words:** Achyrocline satureioides; cold aqueous extract; antiviral; *Western Equine Encephalitis* virus.

**Introduction:** *Achyrocline satureioides* (Lam.) D.C. (Asteraceae) is a medicinal plant used in South America for treat intestinal infections and digestive disorders. Its infusion is utilized for respiratory problems and viral infections. Viruses cause important diseases in humans and animals. Outbreaks of viral encephalitis are a health issue of increasing importance. Western equine encephalitis virus (WEEV) (Togaviridae) is an important pathological agent and there is no effective antiviral drug available for the treatment of this illness. Thus, it is necessary to develop new and efficient drugs. In previous studies we reported that cold aqueous extract (CAE) of *A. satureioides* has strong antiviral activity against WEEV. Therefore, this study was conducted to evaluate the cytotoxicity and antiviral activities of fractions of CAE of *A. satureioides* against WEEV.

**Experimental:** Aerial vegetal parts were submitted to extraction with cold water (4°C) for 48 h. The suspensions were filtered and lyophilized. Dried extract (1 g) was eluted with MeOH (100%) to MeOH: H₂O (9:1) in Sephadex LH20 column (2.5 x 20 cm). Fractions were collected and subjected to dryness. Cytotoxicity of fractions was determinate by Neutral Red Uptake on Vero cells. Then, antiviral activity against WEEV was tested at non-cytotoxic concentrations. The fraction active was submitted to HPLC/DAD analysis.

**Results:** Fractions F₁, F₃, F₄ and F₅, showed non-cytotoxic effects at all concentrations tested (0-100 µg/ml). Contrary, F₂ was more toxic with CC₅₀ of 42 µg/ml. It was possible to determine that F₃ was the active fraction against WEEV with 82% of inhibition. The HPLC–DAD chromatogram of F₃ revealed the presence of two compounds. None of them coincided with chlorogenic, caffeic acid, rutin or quercetin.

**Conclusion:** Fraction F3 of *A. satureioides* exerts high antiviral activity against WEEV. So, this plant is a promising natural antiviral for the treatment of alphavirus infection.

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