Title: THE ACTION OF SULFATED PECTIN OBTAINED FROM *CITRULLUS COLOCYNTHIS* IN THE SYNTHESIS OF HERPETIC PROTEINS, *IN VITRO*.

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Abstract:
Viral diseases have caused great worries, population and scientific community are surprise with every siscovery. The Herpes Simplex Virus (HSV), *Herpesviridae* family, is a viral agent of great medical and epidemiological interest. The HSV replication occur in the sequential and coordinated steps, what allows to explore different action mechanisms. Several plants has been studied to search for new anti-herpetics, that act in different replication steps. In the context, *Citrullus colocynthis* feature various pharmacological properties described, inclued antibacterial and antifugic activities. This work used the sulfated pectin from *C. colocynthis*, in the HSV-1 (KOS strain) protein synthesis, in Vero cell culture. Initially, the cytotoxicity of the compound was verified by MTT (Dimethylthiazole diphenyl tetrazolium bromide), a colorimetric assay and the anti-herpetic activity by plaque reduction assay (PRA) using varied concentrations (800 µg/mL to 1.3 µg/mL) of compound. The citotoxic concentration of 50% (CC_{50}) and the 50% inhibitory concentration (IC_{50}) were determinated with linear regression and the selectivity index (SI) calculated as CC_{50}/IC_{50}. The protein viral synthesis inhibition was evaluated by indirect immunofluorescence (IFI), in concentrations of 800 µg/mL to 50 µg/mL. The CC_{50} was of 1440 µg/mL. The tested compound inhibited 100% of HVS-1 replication, until 50 µg/mL. The concentrations of 25, 12.5, 3 and 1.5 µg/mL, inhibited, respectively 88%, 53.5%, 35.2% and 0%. The value found of IC_{50} e SI were of 9.27 µg/mL and 155. After the evaluation of antiviral activity, the IFI was performed. The less tested concentration, in IFI (50 µg/mL), concentration that showed 100% of viral inhibition in PRA, presented an inhibition of only 52.3%. When evaluated the action of compound in HSV-1 proteins, in higher concentrations, found a dose-dependent reponse and increase of inhibition: 67.5% at 100 µg/mL, 80.2% - 200 µg/mL, 89.3% - 400 µg/mL and 100% at 800 µg/mL. Our results demonstrated action of pectin sulfated from *Citrullus colocynthis* in HSV-1 protein synthesis. The compound presented high value of SI, indicating that the dose required to inhibit 50% of HSV-1 replication is 155 times less than the citotoxic dose of 50%. The percent of viral inhibition, found at lower doses in PRA, suggest a possible action of *C. colocynthis* at other stages of HSV-1 replication. Thus, new actions mechanisms from *C. colocynthis* will be investigated against HSV-1, *in vitro*.

Keywords: antiviral, Herpes Simplex, *Citrullus colocynthis*.

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