

Spasmolytic Action of the Methanol Extract and Isojuripidine from *Solanum asterophorum* Mart. (Solanaceae) Leaves in Guinea-Pig Ileum

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Solanum asterophorum Mart. (Solanaceae) is a shrub popularly known as “jurubeba-de-fogo” in the northeast of Brazil. In the present work, the methanol extract (SA-MeOH, 3–750 $\mu\text{g/mL}$) and isojuripidine (10^{-7} – 3×10^{-4} M), a steroidal alkaloid obtained from *S. asterophorum* Mart. leaves, inhibited phasic contractions induced by both 1 μM histamine [$\text{IC}_{50} = (225.8 \pm 47.4) \mu\text{g/mL}$ and $(3.5 \pm 0.8) \times 10^{-5}$ M] or 1 μM acetylcholine [$\text{IC}_{50} = (112.5 \pm 20.6) \mu\text{g/mL}$ and $(2.3 \pm 0.4) \times 10^{-5}$ M] in guinea-pig ileum, respectively. The extract and isojuripidine also relaxed the ileum (SA-MeOH, 1–750 $\mu\text{g/mL}$, and isojuripidine, 10^{-9} – 3×10^{-4} M) pre-contracted with 1 μM histamine [$\text{EC}_{50} = (101.1 \pm 17.4) \mu\text{g/mL}$ and $(1.2 \pm 0.3) \times 10^{-6}$ M] or 1 μM acetylcholine [$\text{EC}_{50} = (136.8 \pm 21.1) \mu\text{g/mL}$ and $(1.9 \pm 0.4) \times 10^{-6}$ M] or 40 mM KCl [$\text{EC}_{50} = (149.4 \pm 19.5) \mu\text{g/mL}$ and $(1.8 \pm 0.7) \times 10^{-6}$ M], respectively, in an equipotent and concentration-dependent manner. This effect is probably due to inhibition of calcium influx through voltage-operated calcium (Ca_v) channels. To confirm this hypothesis, we evaluated their effect on cumulative CaCl_2 curves in depolarizing medium nominally without Ca^{2+} . SA-MeOH (27, 243, 500, and 750 $\mu\text{g/mL}$) and isojuripidine (3×10^{-8} , 10^{-6} , 3×10^{-5} , and 3×10^{-4} M) inhibited the contractions induced by CaCl_2 , in a concentration-dependent manner. The concentration-response curves to CaCl_2 , in the presence of SA-MeOH and isojuripidine, were shifted downward in relation to a control curve in a non-parallel manner resulting in reduction of the maximum effect [$\text{E}_{\text{max}} = (71.2 \pm 9.2)$; (57.4 ± 9.2) ; (43.8 ± 3.4) ; (41.5 ± 2.4) and (90.6 ± 4.8) ; (74.7 ± 8.7) ; (66.4 ± 3.9) ; $(31.3 \pm 4.1)\%$, respectively]. SA-MeOH and isojuripidine present spasmolytic action in guinea-pig ileum due to a partially blockade of calcium influx through Ca_v channels.

Key words: *Solanum asterophorum*, Spasmolytic Action, Guinea-Pig Ileum