Erythroxylum spp. NEUTRALIZING POTENTIAL AGAINST Bothrops jararacussu TOXIC ACTIVITIES

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INTRODUCTION: According to World Health Organization, snakebite is considered a neglected disease and represents a public health problem worldwide, mainly in poor, rural and farming areas. As known, antivenom is the official treatment, but it does not efficiently protect victims from the local effects caused by the injection of venoms, leading to disabilities or morbidities. Therefore, alternative treatments aiming to block or reduce local effects of venom deserve attention. And, because of the many pharmacological actions, plants are good candidates. The objective of this work was to evaluate the neutralizing potential of the plants Erythroxylum ovalifolium and Erythroxylum subsessile extracts against some toxic effects of Bothrops jararacussu venom.

MATERIAL AND METHODS: Three different parts of E. ovalifolium (stem, leaf and fruit) and two of E. subsessile (stem and leaf) were tested against in vitro activities induced by B. jararacussu venom: proteolytic (using azocasein as substrate), coagulant (using human plasma) as well as in vivo: hemorrhagic (measuring the halo after venom injection) and edema (measuring paw weight). Inhibitory experiments of plants upon toxic activities were performed by incubating plants with venom for 30 min. at 37°C, and then protocols were performed.

RESULTS: The stem of E. ovalifolium and E. subsessile inhibited coagulant activity with similar potency. Upon proteolytic activity, E. ovalifolium extracts inhibited, as follow: stem (66%), leaf (49%), fruit (27%); and the pattern of inhibition for E. subsessile was: stem (77%) and leaf (53%). However, the stem of E. ovalifolium and E. subsessile inhibited 78% and 100% hemorrhagic activity of B. jararacussu venom, respectively; and edema around 52% and 82%, respectively.

CONCLUSIONS: Data show that plants have potential to neutralize B. jararacussu venom and they may constitute an important source of pharmacological compounds with antivenom property.

KEYWORDS: Snake Venom, Neutralization, Plant.

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