INTRODUCTION: Phospholipases A2 (PLA2) are enzymes that act on cell membrane phospholipids carrying out the cleavage of fatty acids and lysophospholipids, deconstructing the cell wall. These proteins are commonly found in snake venoms, causing tissue inflammation in the area of the bite. Evidences indicate that snakes have natural venom resistance due to protective properties of plasma that inhibit the action of proteins present in their venom. OBJECTIVE: This study aimed to purify and characterize a PLA2 inhibitor from Bothrops jararaca snake plasma. MATERIALS AND METHODS: The strategy used to purify the inhibitor was to make an affinity column with PLA2. To reach this goal, crotoxin, an abundant protein found in the venom of Crotalus durissus terrificus, was coupled to the CNBr-activated Sepharose resin. B. jararaca serum was applied to this column that had been previously equilibrated with PBS. Then, the proteins adsorbed to the resin were eluted with a gradient step with PBS containing 1M Glycine pH 2.0. The purified protein was analyzed by mass spectrometry and evaluated for its ability to inhibit PLA2, by adapting the method described by Holzer and Mackessy (1996). RESULTS: The purified protein showed a molecular mass of 150kDa and 25kDa, in no reducing and reduction conditions, respectively. According to the mass spectrometry analysis and the search in the NCBI database bank, this inhibitor showed 72% and 68% of coverage when compared to two protein sequences already described as phospholipase A2 inhibitors, A8I4L6_BOTJA and A8H4M0_BOTJA, and was also capable of inhibiting PLA2 activity when incubated with B. jararaca venom. CONCLUSION: A new PLA2 inhibitor was purified from B. jararaca serum that may play an important role in the neutralization process of envenomation.

Keywords: venom; B. jararaca; antivenom.

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