Effect of a chorogenic acid on the structure and pharmacological activities of sPLA2 from the Crotalus durissus terrificus.

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Introduction. Chlorogenic acid (CGAs) are important group of phenolic secondary metabolites antioxidant produced by certain plant species. These compound are soluble esters formed between phenolic hydroxycinnamates and quinic acid. The CGA, one of the most abundant polyphenols in the human diet, has been shown to exert potent anti-inflammatory, antibacterial and antioxidant activities. Since that secretory PLA2 (sPLA2) is one important key molecule for the inflammation and in case of snake venom, it is the most important toxin. In this article, we investigated the effect of GGAS on the structure and pharmacological os sPLA2 from the Crotalus durissus terrificus. Material and Methods: For this investigation we used high purified sPLA2 from the snake venom using two chromatographid step in HPLC and the CGA was purified by chemical partion and HPLC. The effect of CGA on the enzymatic activity of sPLA2 was measured using a synthetic substrate (NOB) and all enzymatic measurement was determined on SpectraMax. The modified sPLA2 with CGA was purified by RP HPLC and this sPLA2 was subjected to paw edema and myonecrosis effect. Results and Discussion: The CGA induced several modification of secondary structure and hydrophobic characteristics of sPLA2, we observed a significant decrease of alpha helical content and increase of random coil structure. The far circular dichroism showed that CGA treated sPLA2 showed significant changes of tertiary structure. The CGA treatment significant decrease the enzymatic activity and the edema caused by native sPLA2. However CGA did not significantly decrease the myotoxic effect of sPLA2. Conclusion: The CGA was able to induce structural and functional modification of sPLA2 and consequently decrease its pharmacological activity.

Palavra chave: Chlorogenic acid (CGAs), secretory sPLA2, Crotalus durissus terrificus, circular dichroism, edema and myonecrosis.

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