PHENOLIC COMPOUNDS: INHIBITION OF HEMOLYSIS INDUCED BY Bothrops moojeni VENOM

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The search for natural compounds capable to provide protective activity to the living beings such as antioxidative, antimutagenic or some that can prevent damage to cells and its structures has been growing exponentially. Between these natural substances highlights the phenolic compounds with high pharmacologic potential and broadly distributed among plants. Then, the present work aimed to evaluate the inhibitory activity of vanillic acid, epicatechin, p-cumaric acid and catechin, on the hemolysis induced by Bothrops moojeni in human erythrocytes. The activity was evaluated using agarose gel (1%) added with washed erythrocytes (1:3 v/v in Saline). A minimum indirect hemolytic dose (MiHD) was defined for the venom (10µg). The venom and compounds were incubated at 37ºC for 30 minutes at different ratios, followed by its application in the gel and more 24h of incubation. The vanillic acid on the ratios, 1:0.04, 1:0.08 and 1:0.16 (venom: phenolic compound w/w) inhibited the hemolytic activity in 13.3, 24.46 and 28.86%, respectively. Epicatechin on the 1:0.32, 1:0.4, 1:2 and 1:4 ratios induced inhibitions of 28.25, 28.87, 28.87 and 22.2%, respectively. For p-cumaric acid, the proportions of 1:0.04 and 1:0.08 inhibited 28.87 and 31.13% of the activity induced by B. moojeni. Meanwhile, for catechin the most effective ratios were 1:0.16, 1:0.32, 1:0.4 and 1:2, inhibiting 23.87, 26.67, 33.30 and 35.50%, respectively. These inhibitions may be due to interactions between the phenolic compounds and membranes structure, by protecting them against toxins actions. Interactions of phenolic with hydrophobic amino acid residues or aromatic rings in toxins, also has been reported. In addition, phenolic compounds may be interacting in a specific manner with proteases, reducing their action potential on the cell membrane components. Finally, other mechanisms should be investigated aiming a broad evaluation of therapeutic potential of these compounds with perspectives of use as adjuvant to the serum therapy.

Key Words – Phenolic compounds, hemolysis, antiophidian properties.

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