MELITTIN-INDUCED PLATELET SIGNALING AND AGGREGATION

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Accidents involving africanized bees are frequently reported and massive envenomations results in many biochemical alterations, including coagulation disorders that could result in death. The biological effects of bee venoms were ascribed exclusively and during a long time to its phospholipase activity, even though the venom being a complex mixture of toxins. The main toxic substance of *Apis mellifera* venom is melittin, a peptide of 26 amino acids with the ability to interact with cell membranes and modulate many proteins, such as phospholipases. In this work we evaluate melittin and five melittin-derived peptides (Mel-1 to Mel-5) in their ability to affect platelet function. Here we describe the capability of melittin to promote human platelet aggregation in dose-dependent manner and to secrete ATP from dense granules. We also demonstrate that melittin induced platelet aggregation is inhibited by D-600 (a calcium channel blocker) and adenosine monophosphate (an ADP antagonist). Moreover, here we show that Mel-1 and Mel-2, corresponding to the amino-terminal portion of melittin, are related to the pro-aggregating activity as well as the adhesion of the peptide to platelet surfaces. These findings could be useful to the understanding of hemostatic abnormalities during bee envenomation.
Supported by CAPES and CNPq