Ca^{2+} RELEASE AND CONTRACTILE RESPONSE OF INTESTINAL SMOOTH MUSCLE BY BBKI, A KALLIKREIN INHIBITOR FROM *Bauhinia bauhinioides.*

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Ca^{2+} is a second messenger that participates in numerous cellular phenomena and its intracellular levels [Ca^{+2}] are controlled by several and interconnected mechanisms. BbKI is a proteinase inhibitor of kallikrein that releases from kininogen a proinflammatory peptide, bradykinin (BK), which acts on B_1 and B_2 receptors. The effect of BbKI was studied on smooth muscle contraction and Ca^{2+} mobilization using compounds that interfere on these mechanisms such as thapsigargin, L-NAME, Verapamil, FCCP, FKS, the selective B_2 receptor antagonist HOE-140 and the B1 bradykinin receptor antagonist [des-Arg^{10}]-HOE 140. Calcium stores and contraction were evaluated by simultaneous measurements of fluorescence and tension in smooth muscle strips loaded with fura-2AM and methylcholine as control of calcium release. The fluorescence ratio 340/380 showed that 70 % Ca^{2+} mobilization by BbKI (1.86 μM) is comparable to that of BK (2.0 μM) and it also elicited muscle contraction. The effect is blocked only by HOE-140 (6.0 μM), and neither [des-Arg^{10}]-HOE 140 nor other compounds affect BbKI activity, thus indicating a direct action on B2 receptor. BbKI desensitizes B2 BK-receptor while BK does not desensitize the receptor to BbKI. The same effect was observed using a BbKI-reactive site based peptide which shows to be resistant to angiotensin-converting enzyme hydrolysis. (FAPESP, CNPq, SPDM/FADA, CAPES/DAAD).