

Effect of *Bauhinia* Inhibitors on Rat Venous Thrombosis

Vilela-Brito, M.¹; Oliveira, C.¹; Andrade-Chudzinski, S.A.^{1,2}, Malloy, P.M.D.¹; Sato, A.C.^{1,2}; Maffei, F.H.A.^{1,3} and Oliva, M.L.V.¹

¹Department of Biochemistry, UNIFESP/EPM, São Paulo, Brazil; ²Hospital Sírio Libanês (IEP/HSL), São Paulo, Brazil; ³Department of Surgery and Orthopedics, Faculdade de Medicina de Botucatu, UNESP, São Paulo, Brazil.

Bauhinia bauhinioides kallikrein inhibitor (BbKI) a serine proteinase inhibitor of plant Kunitz-type, is devoid of disulfide bridges. We studied the native protein *Bauhinia bauhinioides* kallikrein inhibitor (BbKI), its recombinant form (rBbKI) and the modified recombinant (rBbKI_m), in which the RGD motif was inserted. These inhibitors showed activity against kallikrein and prolonged activated partial thromboplastin time (aPTT) in rat and human plasma. The antithrombotic action these proteins, in a model of venous thrombosis, was studied in anaesthetized Wistar rats, randomly allocated into five groups. Native BbKI, rBbKI, rBbKI_m (0,12 mM), 7.5 mM HEPES buffer, pH 7.4, or unfractionated heparin (250U/Kg) was inject, 30 minutes before the thrombus induction. Ten minutes after administration, bleeding time (BT) was measured, the abdomen opened, a ligature placed at the vena cava just below the left renal vein and the abdominal incision closed. Three and a half hours later, the animals were reanaesthetised, the abdomen reopened, the inferior vena cava isolated, and the thrombus, if present, harvested and weighted. BbKI, rBbKI, rBbKI_m and heparin reduced the thrombus weight by 65%, 27.3% 40% and 100% respectively in comparison to that of HEPES group. No difference in aPTT was observed between BbKI and HEPES groups. No change in BT was observed in the studied groups. These data show that all inhibitors were able to prevent venous thrombosis in rats, but the recombinant forms were less effective. Therefore further studies are to be performed in order to understand the mechanisms involved. Supported by: CAPES, FAPESP, FADA/FAP, MCT/CNPq-CTBIOTECNOLOGY and IEP/HSL. Key words: *Bauhinia*, rat, thrombosis.