

Anti-angiogenic Activity of PLA₂ Lys49 BnSP-7 Isolated from *Bothrops pauloensis* Venom

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INTRODUCTION: Tumorigenesis occurs because of the unbalance between pro and anti-apoptotic factors which promotes cell survival, proliferation and growth of cells that carry mutations. However, a tumor is formed and maintained due to a combination of factors that provide support and assist its needs. Blood supply is an essential need because it supplies nutrients, new blood vessels are then formed through a process called angiogenesis. Thus, drugs that aim to inhibit angiogenesis have high therapeutic potential and biological compounds, e.g., snake venoms are target of new researches. Phospholipases A₂ (PLA₂) isolated from the snake venom showed anti-angiogenic activity. **OBJECTIVES:** This work shows the anti-angiogenic effects of BnSP-7, a Lys 49 PLA₂ isolated from *Bothrops pauloensis* venom, on Human Umbilical Vein Endothelial Cell (HUVEC). **MATERIAL AND METHODS:** BnSP-7 isolation was performed by two chromatographic steps by CM-Sepharose and RP-HPLC. The molecular mass and homogeneity of BnSP-7 were evaluated by 12.5% (v/v) SDS/PAGE. The HUVEC cells viability was determined by MTT assay and cell adhesion inhibition assay was performed using three different substrates, fibronectin, collagen and matrigel and analyzed through MTT assay. Inhibition of *in vitro* vessels formation of HUVEC cells was performed by matrigel coating assay. **RESULTS AND DISCUSSION:** BnSP-7 showed to be homogeneous by SDS-PAGE and it was not cytotoxic to HUVEC cells at different concentrations. BnSP7 was also able to interfere on adhesion and vessels formation on different substrates. **CONCLUSION:** The BnSP-7 demonstrated anti-angiogenic activity on HUVEC, however, more experiments need to be made to confirm its pharmacological potential as an anti-angiogenic drug.

Keywords: PLA₂, anti-angiogenic, tumor, snake venom, BnSP-7

Financial support: CAPES, CNPq, FAPEMIG and UFU