Introduction, seed serine proteases have been fairly neglected when compared to the attention paid to seed cysteine proteases and, as a consequence, their physiology roles in these plant organs are not well established. The activity profiles of these proteases were previously described during quiescence of *Vigna unguiculata* seed. The objective of this research is to isolate and characterize serine proteases from cowpea quiescent cotyledons and to identify their possible endogenous substrates. Material and Methods, dry quiescent seeds were dissected and the cotyledons were ground to a fine consistency flour. This powder was used for albumin and globulin extraction by the addition of Tris-HCl 50mM, pH 7.5, with 1% PVPP (1:10 m/v) for 2 hours and 39.2°F, centrifugation was performed at 15000g, the supernatant was reserved and dialyzed, and centrifuged to obtain both fractions, albumin and globulins in the supernatant and in the precipitate respectively. The proteins from the albumin fraction were separated by ion exchange chromatography (CM-Sepharose) and the protease-enriched peak was further submitted to an affinity benzamidine-agarose chromatography for protease purification. Aliquots from all protein samples obtained throughout the purification process were tested by Bradford and by in solution proteolytic assays towards DL-BApNa. Results and discussion, samples were also visualized by SDS-PAGE and SDS-PAGE-gelatin zymographies. A ca. 97kDa gelatinolytic activity was observed. Retained-affinity fraction was tested in relation to their ability to hydrolise globulin fraction and hydrolysis products were analysed by SDS-PAGE after different times of incubation. Conclusion, the results suggest the presence of multiple isoforms of protease activities acting differently against gelatin, DL-BApNa and globulin-reserve proteins from seeds.

Key Words: Biochemistry, Plant Physiology, Quiescence, Serine Proteases, Vigna Unguiculata

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