

## Alkaline proteolytic activity of *Delonix regia* leaves

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Proteases are crucial for all living organisms, and in plants these enzymes participate in nutrition, morphogenesis, apoptosis, and defense processes against insects, plagues, and microorganisms. *Delonix regia* is a flowering tree from the Fabaceae family, original from Madagascar. Although it has been widely used as an ornamental tree, its pharmacological and biotechnological potential had not been explored yet. In order to extract proteases, the leaves were submitted to 10 cycles of freezing-thawing or lyophilized. Protein amount obtained in freezing-thawing water-soluble extract were 20% higher than water-soluble lyophilized extract and the detergent lyophilized extract presented only 20% of the protein amount found in water-soluble freezing-thawing extract. All extracts exhibited activity against L-a-Tosyl-arginil-methyl-ester, with maximal activity between pH 9.0 to 10.0. Furthermore, the proteolytic activity using hemoglobin and azocasein as substrates was also observed in the water-soluble extracts, and the higher activity was obtained in a water-soluble lyophilized extract. All fractions were submitted to SDS-PAGE and showed different electrophoretic profiles under reducing and non-reducing conditions, and although the extracts exhibited a particular electrophoretic profile, they share proteins with similar molecular mass. Finally, all extracts were submitted to gelatin-SDS-PAGE, and a 65 kDa protein of the detergent extract demonstrated very strong gelatinolytic activity. In order to determine the role of this first protease isolated from *Delonix regia*, further studies are currently in progress.