Purification and Partial Characterization of a Novel Lectin from *Dioclea lasiocarpa* Mart Seeds with Vasodilator Effects

Correia, J. L. A.\(^1\), Nascimento, A. S. F.\(^1\), Gondim, A. C. S.\(^1\), Cajazeiras, J. B.\(^1\), Pires, A. F.\(^2\), Nascimento, K. S.\(^1\), Silva, A. L. C.\(^3\), Nagano, C. S.\(^4\), Assreuy, A. M.\(^2\), Cavada, B. S.\(^1\), Rocha, B. A. M.\(^1\)

\(^1\)Biomol-Lab, UFC, Dep. de Bioquímica, SP, \(^2\)LAFFIN – UECE- Fortaleza-CE
\(^3\)LabBMol, UFC, Dep. de Bioquímica, \(^4\)LEMAP, Dep. Engª de Pesca- UFC.

**INTRODUCTION.** Lectins are ubiquitous glycoproteins of non-immune origin possessing at least one domain that binds reversibly to a specific mono- or oligosaccharide, the range of biological responses elicited by Diocleinae lectins make them valuable biotechnological tools and indicate a considerable potential for use in an array of health care settings. **MATERIAL AND METHODS:** A lectin from seeds of DLL was purified in a single step by affinity chromatography in a Sephadex G-50 column. DLL haemagglutinated rabbit erythrocytes showing stability, but was inhibited after incubation with D- mannose and D- glucose. The pure protein possessed a molecular weight of 25 kDa. The secondary structure content was estimated using circular dichroism. Mechanical activity of isolated aorta from mice was performed and the contractile response was measured and cumulative concentration curves of DLL were performed at the contraction plateau induced by phenylephrine in either endothelium-intact or denuded aorta. **DISCUSSION AND RESULTS:** DLL appears to be composed of three polypeptide chains weighing approximately 30, 14 and 12 kDa. Lectins belonging to Diocleinae subtribe show the posttranslational process named circularly permuted amino acid sequences. The CD results obtained with DLL were compatible with other classical leguminous lectins that contain a preponderance of secondary structures. The vasorelaxant effects of DLL on the thoracic aorta of the rat is consistent with the relaxant action reported previously by others *Diocleinae* lectins. It was observed that removal of endothelium influence the lectin effect in aorta, since the lectin lost its relaxing effect in the absence of endothelium. **CONCLUSION:** The present study demonstrated important vasodilator effects of lectin obtained from the seeds of DLL. The DLL is a glucose/mannose-binding lectin that presented relaxation activity of contracted aorta strictly dependent on intact endothelium. All effects were shown to occur via interaction with the lectin domains and participation of NO.

Palavra chave: Aortic rings; *Dioclea lasiocarpa*; Lectin; Vasodilator effects.
Patrocínio: Funcap, CNPq and CAPES