An Uncommon α-Lactose Binding Lectin in Seeds of Dioclea genus

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With very few exceptions the genus Dioclea is known to be source of glucose-binding lectins. In this work, however, we report the occurrence and purification of a lectin with specificity to D-galactose/α-lactose in seed protein extracts of D. bicolor, a native legume from Amazonian forest. Lectins are proteins ubiquitously in nature. They have the unique characteristic of discriminating complex carbohydrate structures through highly specific recognition and binding without introducing any chemical modification on ligands. This property is very useful to exploit lectins as tools for glycobiology and justifies the continuous search for new ones. Seeds were crushed and the fine powder were added 10-fold volume of 150 mM NaCl. The mixture was maintained at room temperature for 2h. The resulting supernatant obtained after centrifugation (10,000 g for 20 min, 4ºC) was then used for lectin purification. The lectin was purified on an immobilized α-lactose-agarose column. The purified protein agglutinated only rabbit erythrocytes and this activity was inhibited by D-galactose/α-lactose. Electrophoresis profile showed a main band estimated to a molecular mass of 28 KDa and another corresponding to 65 KDa, a common (complex) profile seen in other Dioclea lectins. The lectin is now aim of characterization to determine possible defensive role against phytopatogens.

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