Purification and Characterization of a New Methyl-a-D-Mannopyranoside-Specific Lectin from *Bauhinia forficata* Seeds

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Lectins are carbohydrate-binding proteins possessing at least one noncatalytic domain, which binds reversibly to a specific saccharide. *Bauhinia* belongs to the subfamily Caesalpinoideae of the Leguminosae family. Very few lectins have been isolated from this subfamily, in contrast to the numerous reports from the subfamily Papilionoideae. This work describes the purification and characterization of a new lectin from *Bauhinia forficata*. The isolation procedure comprised ammonium sulphate fractionation (F40-80), ion exchange chromatography on DEAE-Sephadex, affinity chromatography on Sepharose-4B and Chitin and gel filtration on Superdex 75. SDS-PAGE showed that the lectin under non-reducing and reducing conditions in the presence of dithiothreitol (DTT) presents a single band of 21 kDa, being the molecular mass 18.4 kDa, as determined by LC/ESI-MS. The molecular homogeneity and purity was assessed by reverse phase HPLC. Among various carbohydrates tested, the lectin sugar binding was better inhibited by methyl-a-D-mannopyranoside (12.5 mM). Its hemagglutinating activity is stable (100ºC for 30 min), pH-dependent (the highest activity was obtained at pH 6.0) and is not dependent on metal ions, such as Ca^{+2} and Mn^{+2}. The CD spectra showed the predominance of a-helix structures. These results suggest a lectin distinct from other lectins isolated from the same genus, *Bauhinia*.

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