Purification and Characterisation of Lectin from Bowringia Miladbraedii Harms Seeds.

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Abstract:

Lectin was extracted from Bowringia mildbraedii Harms seeds and shown to agglutinate red blood cells nonspecifically. The chromatography using different grades of Sephadex did not give a very good separation of the lectin. Purification of the lectin by Sepharose 68 chromatography followed by metal chelate affinity chromatography was compared with purification by Sepharose 6B followed by ion-exchange chromatography using DEAE cellulose.

The latter method was preferred and yielded a protein which behaved as a single protein on polyacrylamide gel electrophoresis. It was deduced that the lectin occured as a tetrameric protein with two subunits A and B having approximate molecular weight of 14,000 and 16,000 respectively from experiments with SOS-PAGE in the presence of 2, β-mercaptoethanol. The molecular weight of the lectin is approximately 60,000.

The B. mildbraedii lectin precipitated Afzelia africana polysaccharide with remarkable specificity and failed completely to form precipitin bands in agargel double diffusion plates with other polysaccharides tested even at varying concentrations. The haemagglutinating and polysaccharide precipitating activity of the lectin is appreciably inhibited by μ-methylD-mannoside, D-mannose and D-glucose.

Keywords: Lectin/ blood cells/ agglutination/ chromatography/ ion exchange/ harm seeds/ electrophoresis/ diffusion plates

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