



Development Of Galactomannan Membranes From Seeds Of *Cassia Grandis* For Immobilization Of *Caesalpinia Ferrea* Pod Lectin (Cfepl)

Albuquerque, P.B.S.¹; Arruda, I.R.S.¹; Soares, P.A.G.¹; Souza, M.P.¹; Costa, R.M.P.B.¹; Freitas, A.C.C.¹; Correia, M.T.S.¹; Teixeira, J.A.²; Carneiro-da-Cunha, M.G.¹

¹Dep. de Bioquímica, CCB, UFPE, PE, Brazil, ²Centre of Biological Engineering, UMINHO, Braga, Portugal

Galactomannans are polysaccharides present in the endosperm of numerous plants, particularly the Leguminosae, with several functions, including reserve carbohydrates. Polysaccharides membranes have been used as cross-linked matrix for immobilization of different biomolecules. Lectins are ubiquitous proteins in nature and can be used for a variety of biomedical applications. The aim of this work was the development of galactomannan membranes for immobilization of the *Caesalpinia ferrea* pod lectin (CfePL). The galactomannan from *Cassia grandis* seeds was obtained by aqueous extraction (20%), followed by salt precipitation (0.1M NaCl), centrifugation and washes, twice with ethanol (46% and 100%) and finally with acetone. The yield of the galactomannan extraction was determined by phenol sulfuric acid method. Different concentrations of galactomannan (0.5 – 1.5% w/v) and glycerol (0 – 0.3% v/v) were solubilized in distilled water under magnetic stirring (12h), placed on plates and then dried at 40°C for 16h in order to obtain membranes. CfePL was obtained by saline extraction (10% NaCl), followed by affinity chromatography (chitin) and its immobilization was obtained by adding 0.5 mg/mL in galactomannan solution. The hemagglutinating activity was evaluated to confirm the activity of the immobilized lectin. The extraction yield for the galactomannan was approximately 97.33% and the most efficient membrane for lectin immobilization was obtained with 0.8% of galactomannan and 0.2% of glycerol. CfePL immobilization in galactomannan membranes was confirmed by hemagglutinating activity and by Fourier transform infrared spectroscopy (FTIR). These results suggest promising applications in medical therapy, especially on wound healing dressing of CfePL lectin immobilized on galactomannan membranes.

Word Keys: *Cassia grandis*, galactomannan, lectins, polysaccharide membranes

Supported by: CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico, Brasília, Brazil) and CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – CAPES/PROCAD/NF/nº1415/2007, Brazil)

This document was created with Win2PDF available at <http://www.win2pdf.com>.
The unregistered version of Win2PDF is for evaluation or non-commercial use only.
This page will not be added after purchasing Win2PDF.