

MORINGA OLEIFERA LECTIN AND BINDING AFFINITY TO HUMIC ACIDS: APPLICATION TO WATER TREATMENT

Andréa F. S. Santos¹; Luciana A. Luz¹; Maria G. Carneiro-da-Cunha¹, Patrícia M. G. Paiva¹, José A. C. Teixeira², António G. Brito², Regina O. B. Nogueira² and Luana C. B. B. Coelho¹

¹ Departamento de Bioquímica, Universidade Federal de Pernambuco, Recife, Brasil. ² Departamento de Engenharia Biológica, Universidade do Minho, Braga, Portugal.

Humic acids, natural organic matter, constitute a problem in water treatment; they react with chlorine forming undesirable disinfection byproducts. The aim of this work was the purification of a saline soluble *Moringa oleifera* lectin (SSMoL) and characterization of its affinity to humic acids. SSMoL isolation included extraction of seed flour, saline fractionation and guar gel chromatography. Hemagglutinating activity (HA) of extract (E), fraction (0-60F) and SSMoL was assessed with rabbit erythrocytes. HA inhibitions were done with humic acid, carbohydrates, glycoproteins and halogenated organic compounds. Diffusion experiments with humic acid and lectin preparations were performed in agarose gel. Basic SSMoL showed two polypeptide bands with β -mercapthoethanol treatment. SSMoL HA with humic acid decreased from 512^{-1} to 32^{-1} . Similar results were obtained with E and 0-60F. SSMoL was partially inhibited by carbohydrates and glycoproteins; azocasein abolished SSMoL activity. SSMoL HA was not altered with trichloroacetic and dichloroacetic acids, or chloroform. Precipitation bands were observed in diffusion gel. The present study foresees a future application of SSMoL in water treatment to remove humic acids.

Keywords: Lectin, *Moringa oleifera*; humic acids, water treatment.

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