Proteomic Study of Glycoproteins From Serum of Patients With Dengue Fever and Dengue Hemorrhagic Fever, Purified With Immobilized Lectin.


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Immobilized lectins to inert support such as affinity matrices can be used as an efficient technique for purification compounds of biotechnology interest. Currently, dengue is one of the most serious problems of public health and is more prevalent in people from tropical regions. The present research investigated the use of immobilized lectin as affinity support for the isolation of glycoproteins from serum of healthy subjects (HS) and from patients with dengue fever (DF) and dengue hemorrhagic fever (DHF). The seed lectins of Cratylia mollis (Cramoll 1,4, specific for D-glucose) were immobilized on sepharose CL-4B. The Serums HS, DF and DHF were applied to a chromatography column containing Cibacron Blue F3GA to efficient depletion of albumin from human serum. After the depletion, the fraction not adsorbed was applied into a Cramoll 1,4-Sepharose column. The material not adsorbed was washed with 0.15 M NaCl and the column was eluted with D-glucose solution of 0.3 M in NaCl 0.15 M. The adsorbed fractions were collected and assessed for protein concentration and electrophoretic profile and proteomic analysis were performed on Q-Tof Micro®. It could be noticed the presence of different bands for each serum. Proteins were identified by mass spectrometry analysis after an in gel digestion of the proteins. A total of 320 proteins were identified using this approach. 91 proteins were common to all conditions, and 62, 31 and 49 proteins were exclusive from control, DF and DHF sera respectively. Among the glycoproteins that were exclusively found in DF sera there are proteins related to the complement, protease inhibitor while in DHF samples for example hypothetical proteins were identified. These findings confirm that the immobilized Cramoll is an important tool for partial characterization and enrichment of glycoproteins which were identified for mass spectrometer.

Keywords: Dengue Fever, Dengue Hemorrhagic Fever, Proteomics, Lectin immobilized.

Supported by: FACEPE, CNPq e CAPES