Complex Polysaccharide Containing Nosturonic Acid Obtained From Free Living Cyanobacteria *Nostoc* sp.

Ruthes,A.C., Carbonero, E.R., Gorin,P.A.J. and Iacomini,M.

Departamento de Bioquímica e Biologia Molecular, UFPR, Paraná, Brazil.

The subgroup Cyanobacteria includes procariotic and photosynthetic organisms that could be found in fresh, seawater, soil, and like symbionts in lichens. The diversity, mode of synthesis, structure, or properties of the biopolymers produced by such organisms is poorly explored. Free living *Nostoc* sp. from soil was submitted to aqueous extraction and the resultant extract (NW-S) was submitted to freeze/thawing, Fehling precipitation, and dialysis in a 16kDa cut-off membrane, giving rise to NW-PF16R fraction, which showed a homogenous profile (M_w=118.700g/mol) and had fucose(7%), ribose(39%), xylose(14%), mannose(17%), galactose-3-*O*-Me(4%) and glucose(18%) as monosaccharide components. When analyzed by ^{13}C-NMR this fraction presented a complex spectrum with a large number of signals at C1 region (δ103.5, 103.1, 102.7, 101.1 and 99.9), besides two signals at δ84.9 and 84.2, that according to literature could be attributed to C4 of Rib*f*-units, and C3 of nosturonic acid. This was previously characterized like the 3-*O*-lactil-glucoronic acid derivative in EPS of *Nostoc commune*. Other signals that suggest the presence of it at NW-PF16R fraction were δ181.8 and 175.3 of CO_2H and δ18.8 of CH_3 groups. To confirm the presence of the nosturonic acid, a sample was submitted to methanolysis followed by fractionation in silica gel, the single band fraction was analyzed by ESI-MS resulting in a total m/z315, correspondent to an uronic acid in its methyl-ester form with a lactil group attached. Other major fragments were m/z283 and 94 correspondents to the uronic acid, and lactil group, respectively, confirming its presence in this polymer. To characterize which hexose is present in nosturonic acid, and the full structure of the polysaccharide further analysis are being done. Supported by CNPq and PRONEX-Fundação Araucária.