

Structure elucidation of water-soluble polysaccharides of *Trehala Manna*

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Background and Aims: Trehala Manna is a cocoon-like, oval and white bulk with an uneven surface that has a smooth hole in the middle and the hole usually occupied by its productive insect. The sweet Manna has laxative and anti-cough properties and is widely used in Iranian Traditional Medicine. This Study has been designed to identify the structure of water-soluble polysaccharides in Trehala Manna.

Methods: Water-soluble polysaccharides in Trehala Manna has extracted by Sedimentation in 96% ethanol and then centrifuged. After Lyophilization, polysaccharides were purified by ion exchange and gel filtration chromatography. The carbohydrate content was determined by phenol-sulfuric acid method. Uronic acids and protein content was determined spectrophotometrically. After acid hydrolysis, the derivatized monosaccharides were identified by Gas chromatography - mass spectrometry (GC / MS) analysis. The molecular weight was calculated by the calibration curve obtained by using various standard dextrans.

Results: From 9 polysaccharides which were purified, the structures of 3 major polysaccharides were elucidated. These 3 polysaccharides were different in molecular weight (40-670 Kilodalton) and structure. They consisted of variety of monosaccharides such as glucose, mannose, arabinose, galactose and xylose. The uronic acid content of these polysaccharides was 35.33%, 22% and 26.44%, respectively. One of the polysaccharides had glycoprotein structure (2.59% w/w, protein content).

Conclusions: The Trehala Manna contains different water soluble polysaccharides which differ in structure and Molecular weight.

Keywords: Polysaccharides; *Trehala Manna*; GC / MS