**Polysaccharides from Sunflower Stalk Pith: Structure and**

**Functionality**

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**Abstract**

Polysaccharides from sunflower stalk pith (SSP) are mainly composed of two groups: a water pectic-like polysaccharide and a water-insoluble cellulose material. Methylation analysis demonstrated that 1,4-GalpA residues dominated all the sugar linkages in the pectic fractions, while other linkage types including 1,2-Rhap, 1,2,4-Rhap, 1,4-Galp and 1,5-Araf were also present. NMR spectroscopy further revealed homogalacturonan (HG) structure and a small fraction of rhamnogalacturonan-I (RG-I) structure. The degree of esterification (DE) was calculated to be 92% and 64 %, respectively. SSP was observed as a microporous powder, and the cellucose component is the major contribution of this unique structure which demonstrated functionalities of absorbing both water and oil. This unique property were evaluated and found applications in foods, such as reduced oil loss in peanut butter.