PHYSICOCHEMICAL CHARACTERIZATION AND PREBIOTIC EFFECT OF WATER SOLUBLE POLYSACCHARIDES EXTRACTED FROM MEDICINAL PLANT: *Astragalus armatus* Lam. (Fabaceae)

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Abstract :

Astragalus armatus Lam. (Fabaceae), a spontaneous plant used as a traditional medicine in Ghardaïa (Septentrional Sahara Algerian). This paper reports the Physico-chemical characterization and prebiotic effect of water soluble polysaccharides from *A.armatus* seeds. These polysaccharides were obtained by elimination of the ethanol extract and sequential extraction in distilled water, followed by precipitation in 75% isopropanol. The yield of extract is 7.0% (w/w). The crude water soluble polysaccharide extracts were further characterized and revealed the average values 5.23±0.88% ashes, 11.93±1.76% proteins and 79.93±3.66% carbohydrates, among them 20.87±1.26% are uronic acid and 61.35±2.13% are neutral monosaccharides. A single hydrolytic step with 4M TFA at 80°C for 1 h is suggested to be more effective in releasing monomers from polysaccharides than other hydrolysis procedures.The identification of monosaccharide composition by high performance anion exchange chromatography with pulsed amperometric detection (HPAEC-PAD) method shows 48.76% of galactose, 15.42% of arabinose, 11.27% of rhamnose and 18.61% of galacturonic acid. Partial hydrolysis of water-soluble polysaccharides was found to have a growth stimulatory effect on *Lactobacillus acidophilus* and *Lactobacillus bulgaricus* less than that of fructo-oligosaccharide (RP95). However, the hydrolyzate has no effect on the *Escherichia coli* strain. The present study shows that partial hydrolyzate of water-soluble polysaccharides stimulates the growth of *Lactobacillus acidophilus* and *Lactobacillus bulgaricus* bacteria, and that partial hydrolyzate of water-soluble polysaccharides has potential use as a prebiotic health–food.

Keywords: Polysaccharides, spontaneous plant, hydrolysis, oligosaccharides, Prebiotic effet.