

Polysaccharide Composition of *Fraxinus angustifolia* Leave Infusions

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The use of plant infusions with medicinal purposes, such as the ones from members of the *Fraxinus* genus, is an ancient practice that has been reported by popular medicine [1]. The health benefits are associated with the presence of phenolic compounds and polysaccharides, among others [2]. Although phenolic compounds have been studied in detail for more than two decades, the characterization of the polysaccharides present in plant infusions and their involvement in the health benefits is still incipient.

The polysaccharides of *F. angustifolia* dried leaves were recovered by dialysis (12-14 kDa cut-off). The high molecular weight material comprised approximately 2% of the total soluble material obtained from the infusions. Total sugars in fraction were 27%, with a monomeric composition rich in Ara (15.2 ± 1.9 %), Gal (17.7 ± 0.4 %), Glc (30.1 ± 1.3 %) and uronic acids (18.9 ± 2.9 %). Analysis of the glycosidic linkage composition showed the presence of (1→6)-, (1→3,6)- and (1→3)-Gal with a proportion of 5:3:1, respectively, and also a high percentage of Ara terminally linked, diagnostic of the presence of Type II arabinogalactans [3]. Similar features have been reported in biological active Type II pectic arabinogalactans obtained from aqueous extracts of the roots of *C. tinctorium* [4].

The EC₅₀ for the antioxidant activity (DPPH radical assay) was 0.34 ± 0.04 mg/mL, showing lower antioxidant activity than that reported for aqueous extracts of hazel leaves (0.16 - 0.20 mg/mL) [5], but higher than that reported for the table olives “alcaparras” aqueous extracts (0.47 ± 0.03) [6].

The high molecular weight material was fractionated by ethanol precipitation in four distinct fractions: WI, a cold water insoluble residue (20.3% yield); Et₅₀, material precipitated with 50% ethanol (17.9%); Et₇₅, material precipitated with 75% ethanol (21.1%); and SN, material that remained soluble in 75% ethanol solution (40.7%). Fractions Et₅₀, Et₇₅ and SN were submitted to solid phase extraction (C₁₈ cartridge). The Et₅₀ and Et₇₅ C₁₈ non-retained fractions were rich in Ara (13.5-17.2%), Gal (27.1-35.7%) and uronic acids (25.9-35.2%), suggesting the occurrence of heterogeneous pectic arabinogalactans.

NMR experiments are in progress in order to evaluate the detailed structure of the type II pectic arabinogalactans isolated from the infusions of dried leaves of *F. angustifolia*.

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