Chemical Study and Evaluation of Anti-inflammatory Property of the Polysaccharides of Cabernet Franc, Cabernet Sauvignon and Sauvignon Blanc Wines

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INTRODUCTION: There are few works about characterization of polysaccharides of wines. The structure and amounts of polysaccharides released depend on the wine-making process and can influence the sensory properties, quality of the wines and benefits for health. **OBJECTIVES:** This work aimed structural characterization of the polysaccharides found in three types of wines: Cabernet Franc(ACF), Cabernet Sauvignon(ACS) and Sauvignon Blanc(ASB). **METHODOLOGY:** The wines were concentrated and the polysaccharides were obtained via ethanolic precipitation followed centrifugation, dialysis, freeze dry, freezing-thawing, fehling precipitation and fractionation with ion exchange columnn. The polysaccharides have been characterized structurally by chemical methods, nuclear magnetic resonance 2D-HSQC, gas chromatography-mass spectrometry electron ionization, methylation analysis and liquid cromatrography coupled steric exclusion the laser light scattering refractive index in multi angles. The anti-inflammatory potential of the polysaccharides through inhibition of NF-κB in Raw-Blue cells and determining cell viability by the MTT assay. **RESULTS AND DISCUSSION:** Polysaccharide yields were: 0,16%(ACF), 0,05%(ACS) and 0,02%(ASB). The fractions showed monosaccharide composition containing Ara, Rha, GalA, Glc, Gal, Man, Xyl e Fuc in different concentrations. All the samples showed a heterogeneous elution profile, suggesting the presence of polysaccharide mixture. By heteronuclear NMR 2D-HSQC and methylation analysis was possible to identify the presence of type II arabinogalactan (ACF-70,8, ACS-58,0, ASB-46,0%) type I (ACF-12,1, ACS-6,4, ASB-2,0%) and II (ACF-0,5, ACS-0,3, ASB-0,3%) rhamnogalacturanans, mannans (ACF-10,3, ACS-28,6, ASB-43,7%), and dextrins (ACF-6,3, ACS-6,9, ASB-8,1%). The anti-inflammatory potential of the polysaccharides was evaluated through the inhibition of NF-κB in RAW-Blue cells. All samples showed anti-inflammatory property when tested in vitro in a dose 100µg/mL. **CONCLUSION:** The results of chemical, spectrometric and spectroscopic analyzes can furnish a fingerprint for each wine, since the profile of the mixtures had different yields and quantities, aiding for a non-volatile based singular signature. As also, the simples showed anti-inflammatory potential and do not alter cellular metabolism.

Keywords: arabinogalactan, mannan, rhamnogalacturanan.