

# **Obtaining and characterization of enotannins by physico-chemical methods**

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Massive pollution of the environment with chemical, biological, physical and other agents negatively influences the health of the human body, in particular, through the formation of free radicals. Contemporary medicine recommends the use of biologically active substances obtained from natural raw materials, which exhibit remarkable antioxidant properties, as one of the most harmless methods for health recovery [1]. The class of polyphenols is considered among the highest potent natural antioxidants, which comprises phenolic acid, flavonoids, enotannins, and others. The grape seeds represent in the Republic of Moldova the most important raw material, rich in polyphenols, which is a valuable natural source of local origin for obtaining enotannins. These compounds represent a mixture of catechin and epi-catechin oligomers. The polymeric chain is formed upon condensation of carbon atom at position C4 in C-cycle and carbon atom in C8, in A-cycle. Formation of polyphenol oligomers by policondensation processes of catechin and epi-catechin have been studied previously.

In order to obtain high content of enotannins, grape seeds (intact and crushed forms) have been used as extractable local raw material. Different concentrations of ethanol solution (10%; 20%; 30%...96%) have been used as solvent to extract phenolic compounds at the ratio of 1:10 (dry weight seeds/solvent's volume). The total phenolic content was determined using Folin Ciocalteu method with minor modifications. Based on the obtained data, it has been established that the total amount of extractable tannins rises with the increases of ethanol concentration up to 50%. By using this concentration of ethanol, the resulted amount of tannin was around 10.06 mg /g (crushed seeds) and 6.49 mg/g for intact seeds. For the characterization of antioxidant activity, of both intact and crushed seeds enotannin extracts, was used cation ABTS radical method and DPPH radical test. These compounds of natural origin have strong antioxidant activities and are of great interest for future microbiological and pharmacological research, as they have high antioxidant activities.

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