

## ABSTRACT

Fruit has an important role in the human diet since they contain a lot of health beneficial compounds. One of those are antioxidants. Antioxidants are substances which slow down the oxidation or decomposition of other substances. In the last few years, the interest for the isolation of natural antioxidants from raw plant material has been growing. One of important groups of natural antioxidants are phenolic compounds from the fruit.

The influence of parameters on the stability of phenolic compounds during the extraction from fruit is important, because in this way we find out how to obtain the best yields of extraction.

The studied phenolic compounds were gallic acid, vanilic acid, caffeic acid, catechin, epicatechin, quercetin, chlorogenic acid, ferulic acid, resveratrol, elagic acid, *p*-coumaric acid and kaftaric acid. Since the grapes of red grapevine variety were shown to be the fruit with the highest content of phenolic compounds, we used it throughout our experiments.

For the purpose of determining the influence of different types of solvents, solvents such as methanol, ethanol, ethanol/water mixture, and acetone were used. Of all the solvents methanol and ethanol has proved to be the most efficient, since the polarity of the solvent is important for the extraction of phenolic compounds.

The impact of other additives, such as the addition of synthetic antioxidants in the extraction solvent has been researched. The extraction efficiency increased with the addition of propyl gallate (PG), while in the case where PG and butyl hydroxytoluene were added, the efficiency decreased.

The extraction efficiency is also related to the pH of the solvent. Therefore, in the acidified solvent extraction yields increased while in the alkaline solvent the yields were lower.

The aging of the fruit also has a significant impact on the efficiency of extraction because of the stability of the phenolic compounds at room temperature and in the refrigerator.

The purpose of this experiment was to find out whether the maceration results in the formation of new compounds. To verify this possibility, we recorded with mass spectrometric detection chromatograms in full ion current (*full scan*). Detection and identification of compounds in this mode shows whether the composition and ratio of phenolic compounds changes in the maceration process.