Abstract

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Title of Diploma Thesis: Determination of selected phenolic compounds in fruit

This diploma work deals with development and optimization of HPLC method for determination of selected phenolic compounds – gallic acid, chlorogenic acid, caffeic acid, catechin, epicatechin, rutin, quercetin, quercitrin, phloretin and phloridzin.

The diploma work includes information about the general characteristics of phenolic compounds and information about their structure. It further describes HPLC method and mentions the short review of scientific publications regarding this topic.

In the optimization step several types of gradients of mobile phase, stationary phase (chromatographic column of type C18, phenyl-hexyl, biphenyl, amino, cyano and monolithic column), other separation conditions (temperature, extraction) were tested and validation of the method was carried out.

For the analysis of selected compounds precolumn Ascentis Express C18 (5 x 4,6 mm x 5 μm) and the column Kinetex C18 column (150 x 4,6 mm x 5 μm) were used. The detection was performed by DAD spectrophotometric detector at wavelengths of 255, 280, 320 and 365 nm, column temperature of 30 °C using gradient elution with mobile phase of acetonitril and water with adjusted pH to 2,8 with acetic acid. Injection volume was 10 μl and the flow rate 1 ml/min. During the optimalization real apple extracts – the pulp and peel were also used. This developed method is intended for determination of selected phenolic compounds in different varieties of apples during storage under various conditions.