

Abstract

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Title of the diploma thesis: Automation of solid phase extraction method for determination of flavonoids using a flow system

Development and optimization of a method for automated solid phase extraction in a flow system using the Lab-On-Valve platform for determination of flavonoids and metabolites is presented in this diploma thesis. Solid phase extraction performed in a bead injection format was followed by spectrophotometric detection in UV.

The method was optimized for the determination of quercetin and five of its metabolites: rutin, 3,4-dihydroxyphenylacetic acid, homovanilic acid, 3-(3-hydroxyphenyl)-propionic acid and 4-methylcatechol. Optimized parameters included type of sorbent for extraction, amount of sorbent to build a column, pH of loading buffer, composition of eluent and weak wash solution, flow rates for loading and elution of sample, sample volume, sample-buffer ratio and influence of acidification of sample.

Optimization of the flavonoid assay method was performed on standard solutions and is now ready for application to biological samples.