Abstract

Thesis "Identification of selected polyphenols in extracts of medicinal plants" is divided into two parts. The first part is devoted to describing a general division polyphenolic compounds, their antioxidant activity and lists of the methods which are used for the analysis of these substances.

The second part deals with the identification of these selected compounds using the RP - HPLC method with UV detection-DAD, and then with the tandem mass spectrometer with a triple quadrupole. The method was optimized, in this method was used gradient elution with 10-90% acetonitrile, 0,1% formic acid and deionized water. Analysis time was 38 minutes. Elution agents ran from polar to less polar substances. First of all eluted substances which contained the hydroxyl group directly on the benzene ring as e.g. phenolic acids, further eluted aglycones with bound sugar, which provides a higher polarity of the substance (flavanones glycosides), further followed the flavonols without attached saccharide units, at the latest the flavones eluted. This optimized method has proved to be reliable with good repeatability and accuracy for separation of polyphenols.

Using the UV spectrometry the stability was measured. Due to the stability the substances proved to be stable compounds where their UV spectra don't change with time.

With the RP-HPLC-MS / MS method are identified substances in plant extracts that have been extracted in the extraction media - methanol and water. In each extract were identified at least two polyphenolic substances. The results prove that in methanolic medium resulted on the chromatograms of extracts more peaks. It is obvious that methanol is more preferred as extraction medium for polyphenolic compounds. In the aqueous extract were better identified polar phenolic acids aglycones with attached sugars, diglycoside etc. In extracts in methanol were easily identified e.g. flavones.

Keywords: Polyphenolic Substances, HPLC, MS Detection, Plant Extracts