

Abstrakt

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Biologically active substances in the genus of *Rheum* species used in traditional Asian medicine

Diploma thesis

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Background

The goal of this study was to determine content substances and their quantity in two different species of genus *Rheum* and compare to what extent these two species differ in a number of content substances. Another criterion by which these species were compared was their place of origin. I have compared a species growing in its natural environment in the Himalayas with a second species growing in the Czech Republic.

Methods

For determination of content substances and their quantitative determination high – performance liquid chromatography with UV and fluorescent detection was used. Samples were compared with retention factors and retention times of standards. Furthermore, isolation and identification of probable physon was carried out using mass spectrometry.

Results

By qualitative analysis of anthraquinones, aloe – emodin, emodin, chrysophanol, physon and rhein were determined and by analysis of stilbenes piceatannol and resveratrol were determined. Type *R. acuminatum* had greater representation of anthraquinones compared to *R. australe*. When comparing content of stilbenes, it was necessary to separately evaluate piceatannol and resveratrol, as the amount of resveratrol depends on the place of origin. The amount of piceatannol was higher in the *R. australe* species. Looking at the place of origin, samples from Nepal contained a higher amount of resveratrol in *R. australe*, while samples from Pruhonice contained a higher amount of resveratrol in *R. acuminatum*.

When comparing these species based on their place of origin, it was found that the quantity of anthraquinones was higher in the samples from Nepal. Conversely, the content of silbenes was higher in the samples from Pruhonice.

Conslusinos

By comparing species *R. acuminatum* and *R. australe* significant differences were found in the amount of content substances and it was proven that the environment in which the species grow also has its influence.