

## POLYPHENOLIC COMPOSITION OF COMMERCIAL SAMPLES OF RTANJ TEA

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Rtanj's tea infusion is often used to relieve respiratory, urinary and other ailments, as well as a tonic or a beverage. Commercially available Rtanj tea represents a herb obtained mainly from wild plants. As a biological source manufacturers list several species of the genus *Satureja* L., i.e. *Satureja kitaibelii* Wierzb. ex Heuff., *S. montana* L. and *S. hortensis* L. This diversity may affect the composition of infusions, their effects and organoleptic features.

In this work, we investigated the polyphenolic profile of infusions (2 g/100 mL) prepared from seven commercially available samples of Rtanj tea. The LC-MS method was used to identify polyphenols as well as to determine the content of marker compounds, rosmarinic acid (RA) and clinopodic acid O (CAO), by using linear regression of rosmarinic acid as an external standard. The content of total polyphenols was determined by the spectrophotometric method based on the Folin-Ciocalteu reaction, and the results were expressed in gallic acid (GA) equivalents/L of infusion.

LC-MS analysis revealed that the qualitative composition of the tested infusions was very similar. Based on the UV and MS data, phenolic acids were identified in the infusions, of which RA and/or CAO were the dominant compounds, as well as flavonoids, among which luteolin heteroside prevailed. On the other hand, infusions differed in quantitative composition. The content of total polyphenols varied between 118.3 and 476.2 mg/L GA, the content of RA 19.5–129.5 mg/L, while the content of CAO in infusions was 13.9–72.3 mg/L, calculated as RA. Higher content of total polyphenols and RA was determined in the infusions of the samples in the form of filter bags than those found in the form of non-comminuted herb. In addition, it was observed that the origin of plant material had an impact on the quantity ratio between RA and CAO.

The results obtained in this study indicate the importance of the selection of the biological source and its correct identification, as well as the primary processing of the herb on the composition of the infusions.

### References

1. Zlatković B., Bogosavljević S., Radivojević A., Pavlović M. Traditional use of the native medicinal plant resource of Mt. Rtanj. J. Ethnopharmacol. 2014 ; 151: 704-713.

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## POLIFENOLNI SASTAV KOMERCIJALNIH UZORAKA RTANJSKOG ČAJA

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Rtanjski čaj se često upotrebljava u obliku infuza za ublažavanje respiratornih, urinarnih i drugih tegoba, kao tonik ili napitak [1]. Komercijalno dostupni rtanjski čaj predstavlja herbu dobijenu uglavnom od samoniklih biljaka, a kao biološki izvor proizvođači navode različite vrste roda *Satureja* L. (fam. Lamiaceae), *Satureja kitaibelii* Wierzb. ex Heuff., *S. montana* L. i *S. hortensis* L., što može imati uticaj na sastav infuza, njegove efekte i organoleptičke karakteristike.

U ovom radu ispitan je polifenolni profil infuza (2 g/100 mL) pripremljenih od sedam komercijalno dostupnih uzoraka rtanjskog čaja. LC-MS metodom izvršena je identifikacija polifenola kao i određivanje sadržaja marker jedinjenja, rozmarinske kiseline (RK) i klinopodinske kiseline O (KKO), primenom linearne regresije korišćenjem rozmarinske kiseline kao eksternog standarda. Spektrofotometrijskom metodom na bazi *Folin-Ciocalteu* reakcije određen je sadržaj ukupnih polifenola, a rezultati su izraženi u ekvivalentima galne kiseline (GA)/L infuza.

LC-MS analizom ustanovljeno je da je kvalitativni sastav ispitivanih infuza međusobno vrlo sličan. U infuzima su, na osnovu UV i MS podataka, identifikovane fenolkarboksilne kiseline, od kojih su RK i/ili KKO dominantna jedinjenja, kao i flavonoidi, među kojima se ističe prisustvo heterozida luteolina. Sa druge strane, infuzi su se međusobno razlikovali u kvantitativnom sastavu. Sadržaj ukupnih polifenola varirao je između 118,3 i 476,2 mg GA/L, sadržaj RK 19,5–129,5 mg/L, dok je sadržaj KKO u infuzima iznosio 13,9–72,3 mg/L, računato kao RK. Veći sadržaj ukupnih polifenola i RK određen je u infuzima uzoraka u obliku filter vrećica nego onih koji se nalaze u obliku neusitnjene herbe. Pored toga, može se uočiti da poreklo biljnog materijala ima uticaj na međusobni odnos RK i KKO.

Rezultati dobijeni u ovom ispitivanju ukazuju na značaj odabira biološkog izvora, njegove pravilne identifikacije i primarne prerade herbe na sastav infuza.

### Literatura

1. Zlatković B., Bogosavljević S., Radivojević A., Pavlović M. Traditional use of the native medicinal plant resource of Mt. Rtanj. J. Ethnopharmacol. 2014 ; 151: 704-713.

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