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Phenolic profile of *Thymus reverdattoanus* Serg., an endemic species of Sakha (Yakutia) flora: Chemotaxonomic aspect

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Abstract

Reverdatto's thyme (*Thymus reverdattoanus* Serg.) is an endemic species of the family Lamiaceae, common in the Arctic floristic region of the Republic of Sakha (Yakutia). For the first time we realized a study of the chemical composition of *T. reverdattoanus* herb using a complex of chromatographic and spectral methods which led to the discovery of 30 phenolic compounds. Among the phenylpropanoids, caffeic acid and its derivatives were identified as esters with quinic acid (3-*O*-caffeoylquinic acid and 1,3-di-*O*-caffeoylquinic acid), as well as dimeric and trimeric forms (lithospermic acid, rosmarinic acid, salvianolic acid B). The flavonoids identified (aglycons and glycosides) belonged to the groups of dihydroflavonols (taxifolin and its 3-*O*-glucoside), flavones (luteolin and its 6-*C*-glucoside, 7-*O*-rutinoside and 7-*O*-glucuronide, apigenin and its 7-*O*-rutinoside and 7-*O*-glucuronide) and flavanones (eriodictyol-7-*O*-rutinoside; naringenin and its 7-*O*-rutinoside; 7-*O*-neohespersidoside and 7-*O*-glucoside). The presence of isosakuranetin (4′-methoxy-naringenin) and its 7-*O*-glycosides, isosakuranine and didymine, was firstly shown for *T. reverdattoanus* and the genus *Thymus*. The lipophilic flavonoids including cirsimaritin, thymonin-4′-methyl ester and xanthomicrol were identified. Also, the presence of 3,4-dihydroxyphenyllactic acid, carvacrol and thymol was detected. Using the HPLC method, the quantitative content of the identified compounds was determined. It was shown that rosmarinic acid and luteolin-7-*O*-glucuronide were the main components of *T. reverdattoanus* with concentration levels 12.93 and 16.38 mg/g, respectively. The data obtained allowed to determine the chemotaxonomic significance of individual compounds for the species *T. reverdattoanus* and the genus *Thymus* at all. Some lipophilic flavonoids as well as widely represented in this plant glycosides of 5,7-dihydroxyflavanones have been identified as marker compounds of the species.

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