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Research Article

Lavandula angustifolia Herb from Ukraine: Comparative Chemical Profile and *in vitro* Antioxidant Activity

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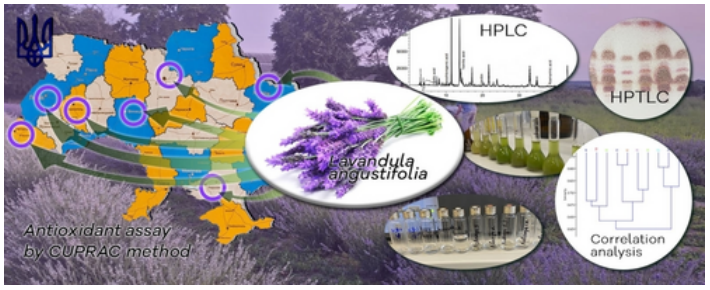
Abstract

Lavandula L. genus plants have always been relevant as medicines for various purposes in food, medicine, pharmaceuticals, cosmetology and aromology. Ukraine is a new territory in the mass plant cultivation and lavender essential oil production. Therefore, the issue of integrated use of herbal raw materials and their intended use is still relevant. For the first time, ten samples of *Lavendula angustifolia* herb from 5 growing regions of Ukraine were studied for the composition and content of polyphenols and terpenoids using HPLC and HPTLC methods, respectively, to assess the prospects and quality of herbal raw materials. The results obtained showed that *L. angustifolia* herb has pronounced antioxidant activity due to the high content of phenolic compounds, namely hyperoside (5.665–11.629 mg/g), vanillic acid (5.986–11.196 mg/g), rosmarinic acid (0.211 to 1.488 mg/g), caffeic acid (0.369–3.835 mg/g), chlorogenic acid (0.239–4.619 mg/g), genistein-7-*O*-glucoside, as well as due to the presence of linalool and linalyl acetate, which was confirmed by qualitative analysis. The total antioxidant activity was the highest in samples from Lviv Botanical Garden (0.293 Trolox mg/mL), Kyiv OLawander (0.288 Trolox mg/mL), Kharkiv Bohodukhiv (0.270 Trolox mg/mL) which is due to the qualitative composition of phenolic compounds. At the same time, the most intense zones of terpenoids in lavender herb were noted for images from Kharkiv region Lebiazhe and Kitchenkivka villiges. Cluster analysis showed priority in the selection of marker compounds (vanillic acid, hyperoside, chlorogenic acid, rosmarinic acid) for lavender herb based on their quantitative content in the samples. In the future, lavender herb from Ukraine can be considered as a promising raw material with neuroprotective properties as part of its complex use, as research continues.

Graphical Abstract



Conflict of Interests

The authors declare no conflict of interest.