

Abstract

The Iridoids of In Vitro Propagated *Nepeta cyrenaica* Quézel & Zaffran [†]

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Abstract: *Nepeta cyrenaica* Quézel & Zaffran (Lamiaceae), an endemic species of the Libyan flora, has been scarcely explored until now. Since *Nepeta* species are proven as pharmacologically active plants rich in iridoid monoterpenes, this study was aimed to quantify the iridoids present in different extracts of in vitro propagated *N. cyrenaica*. The seeds collected from their natural habitat were germinated. One node stem explant of 5-week-old plants were used for plant micropropagation. After several cycles, the shoots were harvested. The extraction was performed using maceration procedure by dichloromethane, methanol, 96% ethanol, and hot distilled water. Subsequently, the extracts were subjected to UHPLC/(±)HESI-MS2 analysis of iridoids. Two iridoids were identified and quantified, namely epideoxyloganic acid and nepetalactol, as well as their precursor 8-oxogeranial. Iridoid glucoside epideoxyloganic acid was the most abundant in the methanolic and ethanolic extracts (1255.37 and 1262.78 µg/100 g dry extract), followed by aqueous extract. On the other hand, 8-oxogeranial and nepetalactol reached maximal amounts in the dichloromethane extract (476.80 and 1039.52 µg/100 g dry extract, respectively). The results of this study indicate that the high antioxidant and enzyme-inhibiting effects of dichloromethane extract confirmed in our previous study could be attributed to its iridoid content, which was particularly high due to the low polarity of this extraction solvent. In conclusion, endemic *N. cyrenaica* could be efficiently propagated in vitro as an iridoid-rich plant with great biological potential.

Keywords: *Nepeta cyrenaica*; in vitro propagation; extracts; iridoids



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