

## The effect of substrate and nutrients on the quality of essential oils of *Lavandula angustifolia* Mill. cv. 'Sevtopolis'

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Plants of the *Lavandula* species are highly valued aromatic plants renowned for their distinct fragrance and therapeutic properties attributed to specific elements within the essential oil.

The quality of lavender essential oils is primarily affected by the oil's unique aroma, which is defined by particular monoterpenes. This study's objective is to examine, by way of comparison, the chemical composition of the essential oils produced by the *L. angustifolia* 'Sevtopolis' cultivar in order to draw attention to the variations that have been detected.

The experiment was carried out in a protected (greenhouse) and unprotected (field) space. To achieve the objectives proposed in this experiment, plants of the species *Lavandula angustifolia* Mill cv. 'Sevtopolis' were used, with four experimental variants, respectively: watered with H<sub>2</sub>O (v1); watered with standard Hoagland nutrient solution (v2); watered with Hoagland nutrient solution containing a double amount of K (v3) and watered with Hoagland nutrient solution containing a double amount of P (v4). The plant material was collected, in the flowering period, in June 2019. The essential oil was extracted by hydrodistillation according to European Pharmacopoeia standards. The separation and the identification of the components have been carried out using GC-FID (gas chromatography-flame ionization detection).

According to the chemical analysis of essential oils of the 'Sevtopolis' cultivar has led to the identification of over 90 organic compounds. Notably, the most abundant chemicals found were linalool, accounting for 24-33.6% of the total compounds, and linalyl acetate, comprising 13-24% of the total compounds. Additional significant chemicals present in the oil's composition include lavandulyl acetate (2.6-4.3%), eucalyptol (1.5-4.9%), terpinen-4-ol (1.8-2.4%), α-terpineol (2.6-3.8%), and borneol (1.3-3.9%).

It can be concluded that the nutrient solution influenced the quality of essential oils of *L. angustifolia* Mill. cv. 'Sevtopolis'.

Keywords: *Lavandula*; essential oil; GC-FID