

P3. CULTIVATION OF *LAVANDULA LUISIERI* FOR THE PRODUCTION OF BIOACTIVE EXTRACTS

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Lavandula luisieri (Rozeira) Riv.-Mart (Lamiaceae) is a small aromatic shrub endemic to the Iberian Peninsula. Previous studies have shown that *L. luisieri* essential oil contains 1,8 cineole, lavandulol, linalool, and their acetates, in addition to a series of compounds with a 1,2,2,3,4-pentamethylcyclopentane (necrodane) structure. The chemotype distribution and bioactivity of *L. luisieri* essential oils exhibited wide variation in the Iberian Peninsula. The major components found were camphor, 1,8-cineole, and 2,3,4,4-tetramethyl-5-methylene-2-cyclopenten-1-one, for central and southern populations and trans- α -necrodyl acetate for western samples. A preliminary experimental cultivation of *L. luisieri* yielded essential oils with insect antifeedant effects stronger than those of wild plants (González-Coloma et al., 2006, 2011). Additional studies have demonstrated that *L. luisieri* extracts also contain phytotoxic and nematocidal new compounds (Barrero et al., 2016). Given the potential value of this species as a biopesticide, a cultivation programme has been established to obtain chemically stable *L. luisieri* plants. Preselected plants were cultivated in an experimental field located in Comarca del Campo de Cariñena (Zaragoza, Spain), selected based on its soil characterization. The experimental design consisted of 3 random blocks and 2 repetitions with a total of 624 plants at a distance of 1.20 × 0.40 m (0.48 m² / plant). After four years of field cultivation, less than 30% of the plants survived, and the essential oil yield presented a great level of variation. Therefore, this species is not suitable for field cultivation under the described conditions. Field plants selected for their biomass production have been cultivated *in vitro*. Multiple shoots have been produced without an intervening callus phase by cultivating 2 cm long nodal segments with axillary buds. The explants were then cultured in Murashige and Skoog basal medium with several modifications. The explants were subcultured every 4-5 weeks and the regenerated plants were successfully rooted and acclimatized, with normal blooming and fructification in a greenhouse. The micropropagation protocol used was very effective assuring a multiplication rate of ten times after two months. This plant production method showed several advantages compared with field cultivation: it is faster, can supply a stable quantity and quality of plants and, avoids the exploitation of wild populations.

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