

PLANT DENSITY AND FOLIAR FERTILIZATION EFFECTS ON ESSENTIAL OIL CONTENT OF FENNEL (*FOENICULUM VULGARE* MILL.)

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Abstract

Aromatic and medicinal plant species can be defined as boundless sources of raw materials which can be used as well in food and pharmaceutical industry. Essential oils extracted from different parts of the aromatic plant species are of increasing interest in cosmetic industry. Some chemical compounds from volatile oils are preferred over the synthetic ones, as natural extracts involve less risk factors as far as consumer's health goes. The aim of this research was to determine the main effects of plant density and foliar fertilization on essential oil yield of two varieties of fennel *Foeniculum vulgare* var. *vulgare* and *Foeniculum vulgare* var. *dulce*. The experiment was carried out using randomized block design with three replications. The distances between rows were 50 cm, 75 cm and 100 cm. The plant spaces on the row was 30 cm in all treatments. In case of each plant density, three foliar fertilizers were applied, with different composition, in terms of macronutrients, micronutrients and amino acids. The results showed that both factors, plant density and foliar application of fertilizers had significant impact on the essential oil content of both sweet fennel and bitter fennel.

Key words: bitter fennel, sweet fennel, plant density, foliar fertilization, essential oil content