

EFFECTS OF FOLIAR FERTILIZATION ON ESSENTIAL OIL COMPOSITION AND ANTIOXIDANT ACTIVITIES OF TWO VARIETIES OF FENNEL

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Abstract

Volatile oils extracted from various species of aromatic and medicinal plants establish a certain category of raw materials of high interest both in food industry and in cosmetics or perfumery. The chemical compounds from essential oils composition are much more appreciated, compared to synthetic substances, whereas natural extractions are associated with a much lower number of risk factors for population health. This research is topical at international level, because there is a lack of scientific data that would highlight as clearly as possible the influence of some factors on the quality of the essential oil obtained from aromatic and medicinal plants. The aim of this research was to determine the influence of foliar fertilizers on essential oil composition and antioxidant activities of two varieties of *Foeniculum vulgare* Mill., var. *vulgare* and var. *dulce*. The field research was established in USV Iasi Research Station – Ezăreni Farm, on May 2021, using a randomized block design with three replications. The data obtained in this research showed a significant influence of foliar treatments on the major components of the essential oil of bitter fennel and sweet fennel seeds. The main components of the oil extracted from fennel seeds were: anethole, fenchone, estragole, anisaldehyde and α -pinene. Also, by using complex foliar treatments (macronutrients, micronutrients and various amino acids) the specific synthesis processes of secondary metabolites (phenolic components, flavonoids) can be positively influenced.

Key words: chemical composition, sweet fennel, bitter fennel, foliar fertilization, antioxidant activity