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**A STUDY OF THE CONTENT IN VOLATILE OILS
AND THEIR COMPOSITION OF VARIOUS AROMATIC HERBS
FROM ECOLOGICAL SOILS**

Mariana Popescu^{1,2}, Diana Puiu¹, Madalina Mihalache¹, Natalita Bordei², Anca Daniela Raiciu^{2,*}, Ionut Cristea¹, Toma Galaon¹, Luoana Florentina Pascu¹

¹National Research and Development Institute for Industrial Ecology ECOIND, 71-73 Drumul Podu Dambovitei, 060652, Bucharest, Romania

²S.C. HOFIGAL EXPORT-IMPORT S.A., 2 Intr. Serelor, 042124, Bucharest, Romania

*Corresponding author: daniela_raiciu@yahoo.com

Abstract

Volatile oils (aromatic essences) have been well known since ancient times, both as food flavors and as a treatment solution for sanitary and cosmetic purposes.

In order to highlight the content in the volatile oils and their composition, a number of fresh aromatic plants have been studied, as: lavender (*Lavandula angustifolia*), rosemary (*Rosmarinus officinalis*), sage (*Salvia officinalis*), thyme (*Thymus vulgaris*) and oregano (*Origanum vulgare*), all originated from the organic crops of the Hofigal Company.

Essential oils were obtained by using the water vapor extraction technique, while for the identification of volatile oil components was used gas chromatography coupled with mass spectrometry (GC-MS).

The experimental results present the volatile oil content of the studied aromatic plants and also the important and specific chemical components of each volatile oil. Likewise, the soils used for plants growth have been analyzed for organochlorine content by using gas chromatography with electron capture detector (ECD). The concentration of these organic compounds is below the maximum allowable limit established by specific law (Order no. 756/1997) for soils of Romania.

These volatile oils from organic sources will be used as raw materials for obtaining food supplements and cosmetics products.

Keywords: *aromatic plants, GC-MS chromatography, volatile oil*

Introduction

Volatile oils, products of secondary plant metabolism, are mixes of several chemical compounds which are characterized by a fragrant scent and by therapeutic proprieties. Volatile oils can accumulate in all organs of the herbs, in varying amounts. These compounds can be found in roots, stems, leaves, flowers, fruits, seeds or in the bark of different plants. Usually the concentration of volatile oils in plants is very low (below 1%), rarely could have values above 10-15% or more. The complex chemical composition of volatile oils (thousands of chemical compounds) is based on mono and sesquiterpene constituents, and aromatic compounds. Physical proprieties of essential oils are defined by volatility at ambient temperature, with a specific scent and a burning taste (European Pharmacopoeia 2017).

In order to highlight the volatile oils from fresh plant products, different extraction procedures are used as distillation and hydrodistillation, extraction with volatile