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Exploring the chemical diversity of essential oils in Armenian markets: a comprehensive analysis of composition profiles

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Due to its location at the convergence of multiple biogeographical regions, Armenia experiences significant variations in climate and soil conditions, resulting in a diverse range of plant chemotypes. However, there has been a lack of recent reports on the biological activity of plants found in Armenia's flora. There are few with well-described essential oil profiles, despite the vast biodiversity of Armenian flora. This study aimed to analyse the chemical composition of essential oils used by the population and found in the Armenian market. Unfortunately, only essential oils of foreign origin can be found, like Russia. Three essential oils of *Lavandula angustifolia*, *Abies sibirica*, and *Rosmarinus officinalis* were selected, and analysed by GC-MS and GC-FID. Based on a comparison with relevant literature and prior GC analyses, it was found that the essential oil of *Lavandula angustifolia* product exhibited similar chromatogram to *Lavandula x intermedia* "grosso", mainly because of the high amount of camphor (6.98%). Similarly, the GC of the essential oil of *Rosmarinus officinalis* showed some similarities with a *Rosmarinus officinalis* cineol chemotype profile, with a surprising higher amount of α - (24.86%) and β -pinene (10.62), compared to the cineol amount (19.51%). In contrast, the GC of the *Abies sibirica* conformed to the classical standards. These data are very important for a safe and therapeutic use of these essential oils.

Keywords: Essential oils, GC-MS, GC-FID, *Lavandula angustifolia*, *Abies sibirica*, *Rosmarinus officinalis*

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