

Chemical Composition Variability of Ethiopian Rosemary *Salvia Rosmarinus* Schleid Accessions

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Abstract

Essential oil (38.48%), camphor (2.15-23%), verbenone (1.83-20.25%), α -caryophyllene (2.12-9.39%), endo-borneol (1.79-12.56%), camphene (1.69-7.86%), bornyl acetate (1.55-9.65%), limonene (1.65-6.07%), α -terpineol (1.66-6.37%), β -pinene (1.55-6.45%), and linalool (1.58-3.91%). Among these, β -pinene, 1, 8-cineole, camphor, and verbenone were the most

analysis showed that β -pinene, 1, 8-cineole and verbenone were correlated negatively with the majority of the major compounds, while the association of camphor with the entire main constituent was not significant, except with β -pinene ($r = -0.46^{***}$) and linalool ($r = -0.303^*$). Based on the relative concentration of the main constituents of the essential

presence of high chemical variability among individual plants that makes it difficult to describe a single chemotype based

high essential oil constituent variability among the tested accessions reflected the enormous potential of Ethiopian rosemary germplasm for wider applications in different destinations that are predominated by rosemary products.

Keywords: *Salvia Rosmarinus*; Chemical composition; Essential oil; Variability

Introduction

The genus *Salvia* L. (Lamiaceae) is one of the largest genera in the world, with over 2000 species distributed worldwide. It is a member of the Lamiaceae family, which is known for its diverse and often aromatic species. The genus *Salvia* is particularly notable for its medicinal and culinary uses. One of the most well-known species is *Salvia officinalis* L., commonly known as rosemary. This species is widely cultivated and used in various applications, including as a herb in cooking, in traditional medicine, and in the fragrance industry. The essential oil of *Salvia officinalis* is a complex mixture of terpenoids, which are responsible for its characteristic aroma and many of its medicinal properties. The chemical composition of the essential oil can vary significantly between different accessions and geographical regions, which is a key factor in understanding its variability and potential applications. This study focuses on the chemical composition variability of Ethiopian rosemary accessions, aiming to identify the main constituents and their relative concentrations, and to explore the factors that influence this variability. The results of this study will provide valuable insights into the genetic diversity and potential of Ethiopian rosemary germplasm, which can be used for various purposes, including the development of new products and the conservation of genetic resources.

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Materials and Methods

Experimental site and plant materials

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(R. 17), 12.56% (R. 18), and 10.11% (R. 34).
B. (2018),

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