COMPOSITION OF ESSENTIAL OIL OF ENDEMIC *Salvia wiedemannii* IN TURKEY

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Salvia L. (Lamiaceae) is represented in Turkey by 94 taxa belonging to 89 species, with a 50% ratio of endemism [1]. They are known as "adacayi" in Turkey, where they grow and are consumed as a hot drink. The name *Salvia* comes from the Latin word for health (*salvare* or heal). In early times, many of these species were use as a tonic, stimulant, carminative, antiseptic, and antihydrotic, to flavor food and in the cosmetics, perfumes, and pharmaceutical industries [2]. More recently, the antioxidant effects of sage have also been demonstrated [3–5]. The plants of this genus are rich in essential oils, and among their constituents, 1,8-cineol and guaiane mono- and sesquiterpenes are very common [6]. 1,8-Cineol (eucalyptol), which is one of the major component of *S. wiedemannii*, has been used in traditional medicine as a secretolytic remedy for bronchitis, sinusitis, and colds [7].

Salvia wiedemannii is an aromatic-endemic plant that grows on limestone slopes, roadsides, and fieldsides of central Anatolia, and the flowering time is from May to July [1]. The species has several distinctive morphological characteristics such as indumentum scabridulous, leaves pinnatisect and both surfaces numerous depressed glandular-punctate, stems mostly antrorse-haired, and corolla lilac-blue. The detailed chemical composition of the essential oil of *S. wiedemannii* is presented here.

TABLE 1. Composition of the Essential Oil of *Salvia wiedemannii*

Compound	RRI	%	Compound	RRI	%
α-Pinene	1032	**13.6**	2-Methyl-6-methylene-3,7-octadien-2-ol	1626	0.1
Camphene	1076	1.1	Myrtenal	1648	0.1
β-Pinene	1118	**24.5**	*trans*-Pinocarveol	1670	0.3
Sabinene	1132	4.0	Ipsdienol	1681	0.1
Myrcene	1174	0.9	δ-Terpineol	1682	0.4
Limonene	1203	0.2	*trans*-Verbenol	1683	0.1
1,8-Cineole	1213	**38.4**	γ-Muurolene	1704	0.1
γ-Terpinene	1255	2.5	α-Terpineol	1706	0.5
5-Methyl-3-heptanone	1265	0.1	Borneol	1719	0.6
p-Cymene	1280	3.3	Verbenone	1725	0.1
1-Octen-3-ol	1452	0.1	Germacrene D	1726	0.2
trans-Sabinene hydrate	1474	0.2	δ-Cadinene	1773	0.1
α-Copaene	1497	0.1	γ-Cadinene	1776	0.2
Camphor	1532	2.5	Myrtenol	1804	0.2
Linalool	1553	0.2	*p*-Cymen-8-ol	1864	0.1
cis-Sabinene hydrate	1556	0.1	Monoterpene hydrocarbons		50.1
Pinocarvone	1586	0.2	Oxygenated monoterpenes		44.7
β-Ylangene	1589	0.1	Sesquiterpene hydrocarbons		0.9
Nopinone	1601	0.1	Others		0.3
Terpinen-4-ol	1611	0.6	Total		96.0

RRI: relative retention indices calculated against *n*-alkanes; % calculated from FID data.

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The components of the oil can be grouped into four main chemical classes, monoterpene hydrocarbons, oxygenated monoterpenes, sesquiterpene hydrocarbons, and others. In total, 35 compounds were identified accounting for 96% of the essential oils. The oils were characterized by high amounts of monoterpene hydrocarbons (50.1%) and oxygenated monoterpenes (44.7%), with 1,8-cineole (38.4%), β-pinene (24.5%), and α-pinene (13.6%) the main compounds (Table 1).

Salvia is represented in Turkey by 94 taxa. Sixty-four percent of the essential oil of *Salvia* taxa have been studied by Baser et al. [8]. In another study, *Salvia* taxa of Turkey were classified into eleven chemical groups according to the main components in *Salvia* oils, and *S. wiedemannii* is described in the α/β-pinene (23–33%/14–30%) group [9]. In this study, 1,8-cineole (38.4%), β-pinene (24.5%), and α-pinene (13.6%) are found as the main compounds for the Eskisehir-Oglakci samples. This finding almost agrees with those of Baser [9].

Various factors, both endogenous and exogenous, can affect the composition of the essential oil of *S. wiedemannii.* We believe that the time of flowering and geographical and climatic factors are very important. Several papers reported that variations in the essential oil composition induced by environmental, physiological, and edaphic factors can induce changes in biosynthesis, accumulation, or metabolism of the given compounds of the essential oil [10].

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