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# Antioxidant Potential and Inhibition of Key Enzymes Linked to Alzheimer's Diseases and Diabetes Mellitus by Monoterpene-Rich Essential Oil from Sideritis Galatica Bornm. Endemic to Turkey

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**Abstract :** The present study was designated to characterize the essential oil from S. galatica (SGEOs) and evaluate its antioxidant and enzyme inhibitory activities. Antioxidant capacity were tested different methods including free radical scavenging (DPPH, ABTS and NO), reducing power (FRAP and CUPRAC), metal chelating and phosphomolybdenum. Inhibitory activities were analyzed on acetylcholiesterase, butrylcholinesterase, α-amylase and α-glucosidase. SGEOs were chemically analyzed and identified by gas chromatography (GC) and gas chromatography/mass spectrophotometry (GC/MS). 23 components, representing 98.1% of SGEOs were identified. Monoterpene hydrocarbons (74.1%), especially α- (23.0%) and β-pinene (32.2%), were the main constituents in SGEOs. The main sesquiterpene hydrocarbons were β-caryophyllene (16.9%), Germacrene-D (1.2%) and Caryophyllene oxide (1.2%), respectively. Generally, SGEOs has shown moderate free radical, reducing power, metal chelating and enzyme inhibitory activities. These activities related to chemical profile in SGEOs. Our findings supported that the possible utility of SGEOs is a source of natural agents for food, cosmetics or pharmaceutical industries.

**Keywords :** sideritis galatica, antioxidant, monoterpenes, cholinesterase, anti-diabetic
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