SAGE (Salvia officinalis) ESSENTIAL OIL: CHEMICAL COMPOSITION AND ANTIBACTERIAL AND ANTIOXIDANT ACTIVITY

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Abstract

In recent years, the focus has been on the use of natural medicinal products in the treatment of all types of diseases. Essential oils obtained from medicinal plants have been known since ancient times as products with healing properties. Sage (Salvia officinalis), a plant from the family Luminacea, is one of the most valued medicinal plants primarily because it is rich in essential oil and because of its wide range of medicinal properties. It has been applied in the treatment of mental and nervous disorders. It is an anti-inflammatory, spasmolytic, antiseptic, antimicrobial, and antioxidant. Sage is also considered Generally Recognized As Safe (GRAS) for use as spices, other natural seasonings, and flavorings. In this paper, the focus is on the composition and characteristics of cultivated sage essential oil collected from the area of Mostar. The essential oil was isolated by the hydrodistillation method in the Clevenger apparatus. The chemical composition was determined by gas chromatography coupled with a mass detector (GC-MS). Twelve constituents were identified, corresponding to 96,89% of present compounds. The main components were camphor (30,25%), alpha-tujone (29,65%), 1,8-cineol (12,44%), and terpinen-4-ol (6,36). Antibacterial activity against Staphylococcus aureus ATCC 25923 and Escherichia coli ATCC 25922 was determined. The results are very promising and have shown bacterial sensitivity to the testing substance. The Salvia officinalis essential oil also exhibited significant DPPH radical scavenging activity, highlighting its potential as an antioxidant. The essential oil was tested on three concentrations (5, 10, and 15 mg/mL) with different times of incubation (20 and 60 min). The results revealed that inhibition of DPPH radical rises with concentration and finally reached a value of 73% (20 min incubation) and 77% (60 min incubation). Current results have shown that our essential oil could be used as a natural alternative to chemical preservatives in the food industry as well as the pharmaceutical industry.

Keywords: *Salvia officinalis, essential oil, camphor, S. aureus, E. coli, antioxydant*