

Phytochemical analysis and antimicrobial effect of essential oil of *Artemisia kermanensis* of Faryab area by agar dilution method

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Background and Aims: Essential oil has many applications in food industry. Their antimicrobial activity affects different classes of microorganisms. This study aims to compare of the chemical composition and antimicrobial activity of the essential oils obtained from the aerial parts of *Artemisia kermanensis* of Faryab area.

Methods: The oil was extracted by hydro distillation method with efficiency 1.82 % (W/W) and was analyzed by GC-MS technique. Antimicrobial effects of this essential oil were carried out by Agar dilution method on *Staphylococcus aureus*, *Salmonella typhi*, *Escherichia coli*, *Candida albicans*, *Aspergillus niger* microorganism.

Results: The main constituents of this oil were follows: 1, 8- Cineole (26.93%), Camphor (16.97%), alpha-Thujone (7.52%), Borneol (7.47%) and alpha-Terpineol (5.77%). The presented results of Minimal Inhibition Concentration (MIC), in the following: *Staphylococcus aureus* (4µg/ml), *Salmonella typhi* (32µg/ml), *Escherichia coli* (32µg/ml), *Candida albicans* (8 µg/ml), *Aspergillus niger* (4 µg/ml). Microorganisms of *Salmonella typhi* and *Escherichia coli* in the highest dilution and microorganisms of *Staphylococcus aureus* and *Aspergillus niger* in the least dilution were bound by essential oil.

Conclusions: The results of this examination are completely adapted with results of GC-MS analysis of essential oil that confirms the existence of 70.60 oxygenated compounds. This proper antimicrobial feature of essential oil is in full adaptation with the chemical composition and percent of oxygenated terpenoids.

Keywords: Chemical composition; Antimicrobial; Essential oil; *Artemisia kermanensis*; Agar dilution method