



## Chemical composition and antimicrobial evaluation of *Achillea aucheri* essential oil

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**Background and objectives:** The majority of the *Achillea spp.* are used as medicinal plants with therapeutic applications worldwide. *Achillea aucheri* was selected in our study to assess its essential oil chemical composition along with antimicrobial evaluation. **Methods:** The essential oil of *A. aucheri* achieved through hydrodistillation, was analyzed via gas chromatography-mass spectrometry (GC-MS). Afterwards, the microbial growth inhibitory property of the *A. aucheri* essential oil was determined using the agar disk-diffusion method against five Gram-positive strains (*Staphylococcus aureus*, *Staphylococcus epidermidis*, *Micrococcus luteus*, *Bacillus subtilis*, *Bacillus cereus*), three Gram-negative bacteria (*Escherichia coli*, *Pseudomonas aeruginosa*, *Salmonella typhi*) and a fungus (*Candida albicans*). Besides, minimal inhibitory concentrations (MICs) of the sensitive strains were determined by broth dilution method to evaluate the inhibitory properties. **Results:** The GC-MS analysis, allowed us to identify 28 compounds, representing 98.1% of the total essential oil. The main components of the oil were identified as  $\alpha$ -thujone (45.6%), artemisia alcohol (26.5%) and yomogi alcohol (8.8%). The findings of the antimicrobial assay indicated that *S. aureus* was the most sensitive strain with the strongest inhibition zone of  $31.5 \pm 0.5$  and MIC of 2.5 % v/v, followed by *S. epidermidis* and *M. luteus*, respectively. **Conclusion:** Overall, *A. aucheri* essential oil possessed potential antibacterial and antioxidant activities that could be attributed to the high content of oxygenated monoterpenes present in the oil which requisite for further exploration of the compounds in charge, considering the growing statistics of bacterial resistance worldwide.

**Keywords:** asteraceae, monoterpenoids,  $\alpha$ -thujone