

## CHEMICAL COMPOSITION AND ANTIMICROBIAL ACTIVITY OF *MARRUBIUM DESERTI* DE NOÉ ESSENTIAL OIL

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**Abstract.** The main objectives of this study were to determine the chemical composition of the essential oil of *Marrubium deserti* de Noé (EOMD) from Bechar (Algeria), and to evaluate its physico-chemical properties, antibacterial and antifungal activities. The yield of EOMD was  $0.29 \pm 0.008\%$ , with the main components being  $\alpha$ -phellandrene (25.05%),  $\beta$ -pinene (14.05%), and  $\alpha$ -pinene (12.83%). Both gram-negative and gram-positive bacteria were significantly inhibited by EOMD with inhibition zones ranging from  $7.00 \pm 0.00$  mm to  $22 \pm 1.33$  mm, and with minimum inhibitory concentrations (MICs) and minimum bactericidal concentration values ranging from 0.0022 to 0.014 v/v; likewise, intriguing antifungal activity against pathogen fungi was noticed with MICs and minimum fungicidal concentration values ranging from 0.00125 to 0.006 v/v. Furthermore, the studied essential oil demonstrated a total suppression of the sporulation and germination of spores at concentrations as from 0.002 v/v. These results emphasize the bactericidal and fungicidal characteristics of EOMD and their prospective usage as a substitute for synthetic bactericides and fungicides.

**Keywords:** chemical composition, essential oil, *Marrubium deserti de Noé*, antibacterial, antifungal.