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The investigation of antimicrobial activity of thyme and oregano essential oils

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Abstract: The aim of this study is to investigate in-vitro antimicrobial effects of the essential oils from oregano (Origanum acutidens and Origanum rotundifolium) and thyme (Thymus sipyleus subsp. sipyleus var. rosulans). The chemical composition and antimicrobial attributes of the essential oils obtained from the aerial parts of the plants, of which there were 3 Lamiaceae species, have been studied. A total of 43 microorganisms, including 26 bacteria, 14 fungi, and 3 yeasts species, have been studied by using disc-diffusion (DD) and minimal inhibition concentration (MIC) methods. Mean inhibition zones and MIC values of bacterial strains varied from 8 and 72 mm to 7.8 and 500 µg mL^{-1}, respectively. The maximal inhibition zones and MIC values of the yeast and fungi species sensitive to the essential oils were 8-74 mm and 7.8-500 µg mL^{-1}, respectively. The susceptibility of the tested microorganisms varied depending on the essential oil composition. In general, the essential oils showed higher DD values than tested antibiotics. The essential oils of oregano and thyme may be considered a potential source of a natural antimicrobial for the food industry after testing the toxic and irritating effects on humans.

Key words: Antimicrobial activity, essential oil, Origanum acutidens, Origanum rotundifolium, Thymus sipyleus subsp. sipyleus var. rosulans

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