Evaluation of antibacterial activity of the essential oils of Zataria multiflora, Carum cypcticum and Thymus vulgaris by a thin layer chromatography-bioautography method

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Abstract

Bioautography is a method to localize antimicrobial activity on a chromatogram. A modified agar overlay bioautographic method was used to investigate the antibacterial activities of essential oils of Zataria multiflora, Carum cypcticum and Thymus vulgaris. The essential oils of all the plants exhibited activity against Bacillus subtilis and Escherichia coli at Rf = 0.4 which represented the Rf for thymol and carvacrol in petroleum ether chloroform (50:50 as solvent system). Twenty two components were identified in the essential oil of Carum cypcticum. The main compounds consisted of thymol (71.07%), terpinolene (13.08%) and cymene (10.20%). It could be concluded that the observed antibacterial activity was mainly due to thymol and carvacrol in the essential oils.

Indexed Keywords

Antibacterial activity; Bioautography; Carum cypcticum and Thymus vulgaris; Essential oil; Zataria multiflora