

عنوان مقاله:

Isolation of Bacillus spp. from Soil and an Evaluation of Their Sensitivity towards Different Extracts and Essential Oils
(.of Cumin (Cuminum cyminum L

محل انتشار:

مجله علوم و فناوری کشاورزی، دوره 16، شماره 3 (سال: 1393)

تعداد صفحات اصل مقاله: 11

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خلاصه مقاله:

Throughout the present study, some Bacillus spp. were isolated from soil, and the effectiveness of the medicinal plant Cuminum cyminum L.'s essential oil extracts were tested against the isolated bacteria. The Bacillus spp. were identified through ۱۶S rDNA sequence analysis and the antibacterial activity of various organic solvent extracts as well as the essential oils of C. cyminum L. determined in vitro using agar diffusion method and Minimal Inhibitory Concentration (MIC) tests. The hydrodistilled essential oil was analyzed through GC-MS. Twenty-seven compounds representing ۹۲.۶۱% of the total oil were identified. Oxygenated monoterpenes and sesquiterpene hydrocarbons constituted the major components of the oil. The inhibition zones of essential oil (extracted through organic solvent) against the tested bacteria were found within the range of ۱۴.۴ to ۲۰.۲ mm. Organic extracts of C. cyminum L. also revealed a great potential of antibacterial activity against Bacillus spp. Among all the extracts, ethanol extract showed the highest activity against Bacillus megaterium with an inhibition zone of ۲۲.۹ mm and MIC value of ۵۰۰ µg ml⁻¹. In most cases, the essential oil and organic extracts exhibited either similar or higher antibacterial activity in comparison with the standard drug Erythromycin. The results finally suggest that the essential oil as well as organic extracts of C. cyminum L. can act as sources of natural antimicrobial agents with potential applications in food and pharmaceutical industries.

کلمات کلیدی:

Antibacterial activity, Bacillus spp, C. cyminum L, Extracts and essential oil

