

عنوان مقاله:

Synthesis and Antimicrobial Evaluation of the Potassium Salts of Benzhydrazine Dithiocarbamates

محل انتشار:

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خلاصه مقاله:

Background: New antimicrobial agents must be designed and synthesized for treating infectious diseases. In this study, antibacterial and antifungal activities of ۶ potassium dithiocarbamates including three newly synthesized products were assessed on ۱۰ bacterial and ۳ fungal pathogens. Methods: To this end, some benzhydrazine derivatives were reacted with carbon disulfide to afford dithiocarbamates, followed by applying diethyl ether and potassium hydroxide as solvent and base. Then, antimicrobial susceptibility tests were used to determine minimum inhibitory concentration, the minimum bactericidal concentration, and minimum fungicidal concentration values. Results: The chemical structure of all synthesized dithiocarbamates were characterized with ^1H -، ^{13}C -NMR (hydrogen-۱ and ^{13}C -carbon nuclear magnetic resonance) and Fourier-transform infrared spectra. A variety of inhibitory effects was observed by the synthesized salts. Most synthetic dithiocarbamates affected bacterial strains and could efficiently block the proliferation of pathogenic fungi. Conclusions: In general, prepared dithiocarbamates as potent chelating agents are able to interact with cell wall sulfur-containing compounds and the essential enzymes of microorganisms. In addition, the design of new hydrazine-based ligands and their corresponding complexes in future research can improve therapeutic properties. The evaluation of the cytotoxic effects of synthesized dithiocarbamates can also help their antimicrobial usages. Thus, these sulfur-rich and water-soluble salts are potential agents for combating plant pests.

کلمات کلیدی:

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