عنوان مقاله:

Antibacterial and Antifungal Activity of Synthesized Potassium Dithiocarbazinates: A Preliminary In Vitro Study

محل انتشار:

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خلاصه مقاله:

Background:The spread of drug-resistant microbial strains has led many studies for identifying, designing, and synthesizing new antimicrobial agents.The aim of this study was to evaluate antimicrobial effects of some synthesized potassium dithiocarbazinate derivatives against ۶ Gram-negative and ۴ Gram-positive bacteria as well as ۲ molds and ۱ yeast. Potassium salts of dithiocarbazinic acids were prepared in good yields from the reaction of various hydrazides with carbon disulfide. Potassium hydroxide and diethyl ether were used as base and solvent, respectively. Methods:Broth microdilution and streak plate methodswere applied according to the Clinical and Laboratory Standards Institute (CLSI) guidelines to determine the minimum inhibitory concentration (MIC), the minimum bactericidal concentration (MBC), and the minimum fungicidal concentration (MFC) values. Results:Good to excellent inhibitory effects especially on fungi were observed with the tested compounds. Dithiocarbazinates ۳b and ۳f containing ۴-nitrophenyl and ۳-hydroxy-۲-naphthyl substituents could effectively inhibit the growth of all tested bacterial strains. In addition, all synthesized derivatives were effective against fungal pathogens. Conclusion:Based on the data obtained from antimicrobial susceptibility testing,designed derivatives are especially potent antifungal agents. Potassium ۲-(۳-hydroxy-۲-naphthoyl) hydrazine-۱-carbodithioate was introduced as a new wide-spectrum antimicrobial agent. Other biological activities of these water-soluble derivatives can be studied in living organisms.

کلمات کلیدی:

Antibacterial study, Antifungal evaluation, Broth microdilution technique, Potassium dithiocarbazinate, Streak plate method