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Design, synthesis and antifungal activity of pyrazoline, thiazole and imidazole bearing hybrid compounds

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Fungal infections have become a global concern in last decades. Rapid development of resistance against the existing drugs is a major problem in the treatment of fungal infections (1). Therefore, medicinal chemists focused on developing novel and less toxic antifungal agents. Various heterocyclic compounds have been explored in an attempt for development of new antimicrobial agents. Azole derivatives represent a series of synthetic heterocyclic compounds of remarkable medicinal importance. Azole antifungal agents are of ample interest due to their broad spectrum-activity, high therapeutic index, and low toxicity. Among azoles, pyrazolines, thiazoles and imidazoles have found possess promising antifungal effect (2-4). The introduction of these rings into one molecule could be a rationalist approach to develop more effective agents. These hybrid structures may be useful for the development of a new class of antifungal agents. In the present paper, we have clubbed pyrazoline, thiazole and imidazole rings in one molecular structure for the synthesis of more potential antifungal agents. The structures of synthesized compounds were elucidated by various methods including FT-IR, ^{1}H NMR, ^{13}C NMR, and MS spectral data. The synthesized hybrid molecules were investigated for their inhibitory activity against Candida species by broth microdilution assay. Some of the compounds exhibited remarkable antifungal activity.

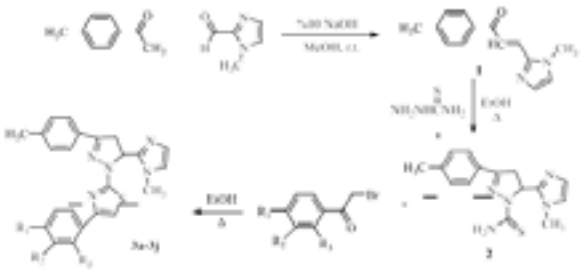

Figure 1. The synthetic pathway of the compounds (3a-3j)

Biography

Betul Kaya Cavusoglu graduated at the age of 23 years from Anadolu University in 2014. She has been continuing her PhD at the same university since 2014. She has published more than 15 papers in reputed journals and has been studying on her thesis.

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