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Abstract

Synthesis and Antimicrobial Activity Evaluation of New Benzimidazole—Thiazole Derivatives †

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Antibiotic resistance which was expedited by the use of antimicrobial drugs has been a significant global challenge for public health [1]. In addition to this, candidiasis is the most common fungal infection worldwide, causing important morbidity and mortality, especially in immunocompromised patients [2].

A literature survey has uncovered that the various derivatives of benzimidazole have been synthesized for their pharmalogical activities and many of them supported the finding that benzimidazole derivatives are potent against various microorganism strains [3]. On the other hand, benzimidazoles are a class of synthetic remedial agents; for example, chlormidazole and carbendazim are used with a view to curing patients infected with fungus species.

The compounds that include thiazole on the same structure have significant antimicrobial activity; Sulfathiazole, which is an antimicrobial drug, includes a thiazole moiety [4].

From this point of view, in the present study, new Benzimidazole-thiazole derivatives were synthesized. The structures of the synthesized compounds were elucidated using FT-IR, ^{1}H-NMR, ^{13}C-NMR, and HRMS spectral data. The synthesized compounds were screened for in vitro antimicrobial activity against pathogenic strains bacteria and candida. The effects of the selected compounds against ergosterol biosynthesis were observed by the LC-MS-MS method, which is based on quantification of the ergosterol level in C. albicans.

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