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Quinazolino-Thiazoles: Fused Pharmacophores as Antimicrobial Agents

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Abstract : Over the past several years the emergence of micro-organisms resistant to nearly all the class of antimicrobial agents has become a serious public health concern. In the present research, we report the synthesis and in-vitro antimicrobial activity of a new series of novel quinazolino-thiadiazoles 3 (a-j). The synthesized compounds were confirmed by melting point, IR, 1H-NMR, 13C NMR and Mass spectroscopy. In general, the results of the in-vitro antibacterial activity are encouraging, as out of 10 compounds tested, Compound 3f and 3i with a 4-chloro phenyl and 4-nitro phenyl at C-2 of thiadiazolyl of quinazolino-thiadiazoles, displayed the excellent antibacterial and antifungal activities against all the tested microorganisms (Bacterial and Fungal strain) with MIC values of 62.5 µg/mL. It is worth to mention that the combination of two biologically active moieties quinazoline and thiadiazole profoundly influences the biological activity. While evaluating the antimicrobial activity, it was observed that compounds having electron withdrawing groups on thiazole has shown profound activity in comparison to compounds having electron releasing groups. As a result of this study, it can be concluded that halogen substituent on thiazole ring increases antimicrobial activity. Possible improvements in the antimicrobial activity can be further achieved by slight modifications in the substituent's and/or additional structural activity investigations to have good antimicrobial activity.

Keywords : antifungal, antimicrobial, quinazolino-thiazoles, synthesis
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