The Role of Heterocycles in Current Drug Discovery

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Abstract:

The chemistry of heterocyclic compounds has attracted attention in recent times due to its increasing importance in the field of pharmaceuticals and industries. In fact, the synthesis of bis-heterocyclic compounds exhibits various biological activities. Various recent reports on Tuberculosis have alarmed an increase in the patient class and subsequent death rates across the globe. Over and above the spread of more dangerous and fatal forms of tuberculosis like MDR-TB i.e. multiple-drug resistance tuberculosis, XDR-TB i.e. extensively-drug resistance tuberculosis & TDR-TB i.e. total-drug resistance tuberculosis has forwarded an urgent need to discover novel antitubercular agents. As examples, Benzothiazole and its derivatives represent one of the most biologically active classes of compounds, displaying a remarkable diversity of bio-activities in the medical and the agrochemicals field. Pyridone derivatives played important roles in the last decade to approach many and different functionalities, especially as antitumor, antibacterial, anti-fungal, and many of pharmacological activities. Fluorine substituted heterocyclic derivatives exhibit a wide spectrum of the medicinal, pharmacological and biological fields such as anti-HIV, anti-cancer and antimicrobial activity. Recently, literature appraisal reported that hydrazide-hydrazones are valuable intermediates in the synthesis of heterocyclic compounds with potential pharmaceutical and biological activities. The pyrazoline and benzoxazole nucleus is aimed at combining two previously well known pharmacophores in order to design and synthesize a series of novel benzoxazole-based pyrazoline derivatives. The scientists and researchers have established the synthetic route for the target compounds. They were also structurally confirmed the NCEs by the help of LC-MS, 1H-NMR and 13C-NMR analysis. They extended the study for biological evaluation of target compounds were in vitro and in vitro screening.

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