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Development of thienopyrimidines as potential pharmaceuticals

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Pyrimidines and fused pyrimidines are important classes of heterocyclic compounds that exhibit a broad spectrum of biological activities such as anticancer, antiviral, antibacterial, antioxidant, anti-inflammatory and analgesic activities. Among them quinazoline is the important scaffold which is an existing core moiety in gefitinib (as monotherapy for the treatment of patients with locally advanced or metastatic non-small cell lung cancer), lapatinib (as breast cancer treatment). Furthermore bioisosteric replacement of benzene ring in quinazoline by thiophene ring has been an important drug design strategy to optimize various lead structures like thienopyrimidines which shows the outstanding biological activities like Hsp90 ATPase Inhibitory, Tk Inhibitors DHFR inhibitory, CDK4 inhibitory, anti-inflammatory, anticancer and antitubercular activities. These thienopyrimidine scaffolds also widely used in the drug discovery and have been employed broadly in the design of various kinase inhibitors, including cyclin-dependent kinase, phosphoinositide 3-kinase α(PI3Kα), EGFR/ErbB-2, aurora kinase and also implicated in the potential treatment or prevention of Alzheimer's disease. Some substituted thieno [2,3-d] pyrimidines also act as a partial agonist for the luteinizing hormone/ choriogonadotropin receptor (LHCGR) and the closely related thyroid-stimulating hormone receptor (TSHR), the above literature survey and enormous importance of thienopyrimidines in present medicinal chemistry encouraged us to select the thienopyrimidine as our basic core moiety. Hence in the present study a series of thienopyrimidine derivatives have been selected for the synthesis by incorporating the simple pharmacophores like oxadiazole, triazole, triazolothiadiazole, Schiff and Mannich bases and studied for their biological assay for *in vitro* microbial and cytotoxicity activity studies. All the compounds are well characterized by spectral data.

Biography

Chunduri Venkata Rao is currently a Professor of Chemistry in Sri Venkateswara University Tirupati. His area of research interest is Natural Products Chemistry and Synthesis of bioactive heterocyclic compounds. He has supervised 18 students for PhD and 6 for MPhil. At present 6 Research Scholars are working for their PhD Program. He has published over 70 research papers in national and international peer reviewed journals. He is a life member of ICC, Agra. He is serving as a reviewer and Editorial Board Member of reputed journals. In recent years he focused on the synthesis of various biologically active thieno & seleno pyrimidine derivatives.

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