

Executive Summary of UGC Minor Research Project

Title: “Synthesis and Biological Evaluation of Derivatives of Thiophene as Potential Antibacterial and Antifungal Agents”

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Summary

Thiophenes have proved to be good source of medicinal agents. The various activities associated with these moieties include antimicrobial, anticancer, antiviral, antihypertensive, analgesic and anti inflammatory, anticonvulsant, sedative and other pharmacological activities.

Considering this, 12 novel thiophene analogues were designed and synthesized which were then evaluated for their antibacterial and antifungal activities. Selected compounds were characterized by using IR, MS, and ¹H NMR spectral analysis.

All the compounds 1-12 were evaluated for their *in vitro* antibacterial activity against an assortment of two Gram-positive bacteria *Staphylococcus aureus* ATCC 6538P, *Bacillus subtilis* ATCC 6633, and two Gram-negative bacteria *Escherichia coli* ATCC 8739, *Pseudomonas aeruginosa* ATCC 9027 by the serial dilution method. Azithromycin was used as the standard.

All the compounds 1-12 were screened for their *in vitro* antifungal activity against *Candida albicans* ATCC 10231, *Aspergillus niger* ATCC 9029 by serial dilution method. Fluconazole was used as the standard.