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One-pot three-component domino protocol for the synthesis of novel pyrano[2,3-d]pyrimidines as antimicrobial and anti-biofilm agents

Lingala Suresh, P Sagar Vijay Kumar and **G V P Chandramouli**
National Institute of Technology, India

A simple and facile synthesis of a series of novel pyrano[2,3-d]pyrimidines have been achieved successfully via one-pot three-component reaction of 2-amino-7-methyl-5-oxo-4-phenyl-4,5-dihydropyrano[4,3-b]pyran-3-carbonitriles, DMF-DMA and aryl amines in the presence of 1-butyl-3-methyl hydrogensulphate [Bmim] HSO4 ionic liquid. This method has several advantages of producing high yields, clean reaction, simple methodology and short reaction times. The synthesized compounds were evaluated for their antimicrobial activity against gram-positive, gram-negative and different *Candida* strains. Among the screened derivatives, the compounds pyrano[2,3-d]pyrimidines were found to be active against both bacterial and *Candida* strains with MIC values ranging between 3.9 to 31.2 μg.mL-1. In addition, the compound pyrano[2,3-d]pyrimidines showed good minimum bactericidal concentration, minimum fungicidal concentration and anti-biofilm activities. Furthermore, the mode of antifungal action for the promising compound pyrano[2,3-d]pyrimidines were evaluated in *C. albicans* MTCC 1637 through the ergosterol biosynthesis inhibition process.

Biography

Lingala Suresh is currently pursuing his PhD under the supervision of Professor G V P Chandramouli at National Institute of Technology, Warangal. He is working as a Research Scholar in Department of Chemistry. He has 2 publications in reputed journals.

lsureshnitw@gmail.com

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