

Synthesis and Biological Evaluation of Oxadiazole Clubbed Thiadiazole Derivatives as Antimicrobial Agents

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ABSTRACT A series of 1,3,4-oxadiazole clubbed 1,3,4-thiadiazole derivatives were synthesized and assessed *in vitro* for their activity as antimicrobial agents. The target compounds 2-(5-(substituted aryl)-1,3,4-oxadiazol-2-ylthio)-*N*-(5-(substituted aryl)-1,3,4-thiadiazol-2-yl) acetamides (**5a-5s**) were synthesized using a basic condensation reaction between 5-(substituted aryl)-1,3,4-oxadiazole-2-thiol and 2-chloro-*N*-(5-(substituted aryl)-1,3,4-thiadiazol-2-yl)acetamide in presence of K₂CO₃ as a scavenging agent and acetone as reaction solvent. The titled compounds synthesized here, exhibited excellent to moderate antimicrobial activity against a broad panel of antibacterial strains of Gram-positive and Gram-negative bacteria and fungi.

KEYWORDS Oxadiazole, Thiadiazole, Zone of inhibition, Antibacterial, Antifungal

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