

The chapter-I introduces nitrogen and oxygen-containing heterocycles, emphasizing their importance in medicinal chemistry, materials science, and agriculture. Compounds like imidazopyridines and oxadiazoles are highlighted for their versatile biological activities, including antimicrobial, antiviral, and anticancer properties, making them valuable scaffolds in drug development. The chapter -II focused on the synthesis and antibacterial studies of imidazopyridinyl-1,3,4-oxadiazoles, this chapter details environmentally friendly and efficient methods for their preparation. The synthesized compounds demonstrate significant antibacterial activity, establishing them as potential candidates for novel antimicrobial therapies against pathogenic micro-organisms. The chapter-III explores a microwave-assisted approach for synthesizing trifluoromethyl-1,2,4-oxadiazoles (TFMO). The method adheres to green chemistry principles by reducing reaction times and increasing yields. TFMO derivatives, known for their unique physicochemical properties, are shown to have promising applications in pharmaceuticals and agrochemicals, highlighting their practical relevance.



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Heterocyclic Chemistry: Focus on Nitrogen and Oxygen-Containing Compounds

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