

Exploring the Chemistry and Biological Significance of the Benzimidazole Nucleus: A Comprehensive Review

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Abstract: *Benzimidazole is a heterocyclic aromatic compound with significant pharmacological importance. It serves as a privileged structural motif in medicinal chemistry, exhibiting a wide range of therapeutic activities, including anti-ulcer, antihypertensive, analgesic, anti-inflammatory, antiviral, antifungal, anticancer, and antihistaminic properties. A comprehensive review of the literature confirms the effectiveness of benzimidazole derivatives in combating various microorganisms, highlighting their potential in pharmaceutical applications. Due to their biological significance, the synthesis of benzimidazole derivatives has garnered considerable attention in organic chemistry. This review aims to summarize the chemistry, synthesis strategies, and diverse pharmacological activities of substituted benzimidazole derivatives...*

Keywords: Benzimidazole, heterocyclic compounds, medicinal chemistry, synthesis, pharmacological activities, antimicrobial, anticancer, antiviral

