

## A REVIEW ON PHENOTHIAZINE: BIOLOGICAL ACTIVITIES AND ITS DERIVATIVES

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### ABSTRACT

In medicinal chemistry, biologically active heterocyclic molecules have drawn a lot of interest because of their many pharmacological uses. Among these, phenothiazine and its derivatives constitute a significant class of substances renowned for their varied biological activity and structural adaptability. The chemistry, structural alterations, and biological potential of phenothiazine derivatives described in the literature are all well covered in this review. Their primary biological activities—such as antibacterial, anticancer, anti-inflammatory, antioxidant, antitubercular, antiviral, and effects on the central nervous system—have been highlighted. To demonstrate their impact on biological performance, the structure–activity relationship (SAR) of several substitutions on the phenothiazine nucleus is examined. Recent developments in

synthetic approaches and pharmacological analyses of molecules based on phenothiazine are also outlined. The ultimate objective of this study is to encourage future research for the creation of novel bioactive compounds and to offer insightful information on the therapeutic worth of phenothiazine derivatives. Overall, this review highlights the therapeutic relevance of phenothiazine-based compounds and supports their continued development as promising drug candidates.

**KEYWORDS:** Phenothiazine, Biological Activities, Derivatives, SAR.

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