

# Chemical Significance of 1,3-Benzoxazole Derivatives

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## Editorial Note

Drug design is increasingly based on modern computational chemical techniques and also uses sophisticated knowledge of disease mechanisms and receptor properties. The chemistry of heterocyclic compounds is justifiable both from the hypothetical as well as practical importance. Their study is of top priority interest. Numerous compounds inclusive of alkaloids, essential amino acids, vitamins, hemoglobin, hormones, wide variety of synthetic drugs and dyes contain heterocyclic ring frameworks. There are huge numbers of manufactured heterocyclic compounds like pyrrole, pyrrolidine, furan, thiophene, piperidine, pyridine and thiazole, having vital application and many are significant intermediates in synthesis of medicines. In the core structure, heterocycles consisting of oxygen and nitrogen atoms exhibits number of pharmacologically and biologically active compounds. Amidst all the heterocyclic compounds, benzoxazole is one of the significant heterocycles showing exceptional pharmacological activities. Its aromaticity makes it relatively stable, although as a heterocycle it has reactive sites, which

allows for functionalization. Benzoxazole conjoined to 1,3,4 oxadiazole have been found to be of great interest also has a broad spectrum of biological activities. Literature survey showed that 1,3,4 oxadiazole has been a frontier in pharmaceutical research for synthesis of new derivatives playing a vital role in biological activities as drugs. As per the literature survey benzoxazole shows remarkable pharmacological activities like antimicrobial, antioxidant, antifungal, cytotoxic, anti-tubercular, Pancreatic Lipase Inhibitory, analgesic and anti-inflammatory. Even 1,3,4 oxadiazole also shows appreciable activities as antibacterial, antifungal, nematicidal, anti-HIV, antitubercular. Hence the combined moiety of benzoxazole and oxadiazole seem to display impeccable biological activity.

Inspired by the biological profile of benzoxazoles and oxadiazoles and their increasing importance in pharmaceutical and biological fields, in continuation of our research on biologically active heterocycles considering the scope to introduce 1,3,4-oxadiazole moiety into the benzoxazole, it is thought worthwhile to undertake the synthesis of title compounds. In view to obtain certain new chemical entities with both active pharmacophores in a single molecular frame work for the intensified biological activities.

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