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(57) Abstract :

The present invention relates to the synthesis and characterization of novel benzimidazole derivatives exhibiting potent antifungal activity. The derivatives are synthesized by reacting o-phenylenediamine with organic acids, such as 3,5-dinitrosalicylic acid or adipic acid, in an acidic medium under reflux conditions. The process is optimized by introducing catalytic amounts of potassium ferrocyanide for improved yields. The synthesized compounds, including 4-(2,3-dihydro-1H-benzo[d]imidazole-2-yl)-2,5-dinitrophenol and 3-(2,3-dihydro-1H-benzo[d]imidazole-2-yl)phenol, are characterized using IR, ¹H NMR, and mass spectrometry to confirm their structure and purity. These derivatives exhibit excellent solubility in ethanol or water and show significant antifungal properties, as demonstrated through biological assays. The invention addresses the limitations of existing antifungal agents, offering a novel, efficient, and scalable synthetic method for developing effective antifungal compounds suitable for medical and agricultural applications.

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