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Design, synthesis, characterization, and anticonvulsant evaluation of some new benzimidazole derivatives

Manisha Srivastava[1,2], Kuldeep Singh[1]*, Sanjay Kumar[2], Syed Misbahul Hasan[1], Arun Kumar[1], Shom Prakash Kushwaha[1], Ali Husen[3] and Suvaiv[1]

[1]Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Integral University, Lucknow, Uttar Pradesh, India
[2]Department of Pharmacology, Hygia Institute of Pharmacy, Lucknow, Uttar Pradesh, India
[3]Department of Pharmacognosy, Aryakul College of Pharmacy and Research, Lucknow, Uttar Pradesh, India

ABSTRACT In this study, new benzimidazole derivatives (BPH-1-BPH-8) were synthesized and tested for their anticonvulsant properties. The synthetic approach involved three steps (i) preparation of benzimidazole-2-carboxylic acid esters, (ii) formation of hydrazides by the hydrazinolysis of carboxylic esters with hydrazine hydrate, and (iii) the condensation of hydrazide with substituted phthalic anhydride to give target compounds. The anticonvulsant activity was tested through the maximal electroshock seizure animal model method, with phenytoin as a standard drug. Three compounds, BPH-3, BPH-5, and BPH-7, demonstrated significant protection against electrically induced seizures, thus implying that the presence of electron-withdrawing groups at the aromatic ring enhances the anticonvulsant potency.

KEYWORDS Anticonvulsant activity, Benzimidazole derivatives, Maximal electroshock seizure model, Phthalic anhydride

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