OMICS Group Conferences
Accelerating Scientific Discovery

International Conference and Exhibition on
Neurology & Therapeutics

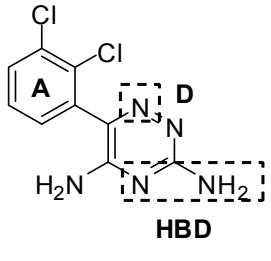
May 14-16, 2012 Embassy Suites Las Vegas, USA

Design, synthesis and anticonvulsant activity of some novel 1,2,4-Triazine Derivatives

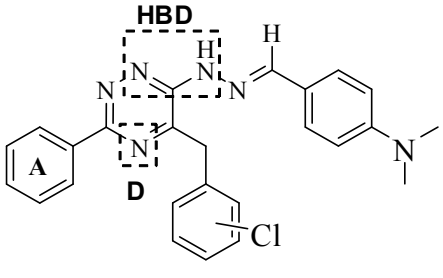
Mohammad Amir and Israr Ali

Hamdard University, India

Epilepsy is a chronic neurological disorder characterized by the periodic and unpredictable occurrence of seizures that affects people of all ages. Around 1% of the world population at any given time is afflicted with this neurological disorder, with about 2.4 million new cases adding up each year, as suggested by the World Health Organization (WHO). Seizures arise from a temporary electrical disturbance of the brain due to an imbalance between excitatory and inhibitory neurotransmitters. The widely prescribed antiepileptic drugs (AEDs) predominantly act through the blockade of voltage-dependent Na^+ channels/T-type Ca^{++} channels, inhibition of glutamatergic transmission and facilitation of γ-aminobutyric acid (GABA) an inhibitory neurotransmission. In-vivo maximal electroshock seizure (MES) test is the most useful procedure for the discovery of anticonvulsant agents acting through Na^+ channel-related mechanism. The basic structural requirements for Na^+ channel blockers are one aryl unit (A), one or two electron donor atoms (D), and a hydrogen bonding domain (HBD). Moreover, lamotrigine, a 1,2,4-phenyltriazine derivative having above pharmacophore, is a clinically effective antiepileptic drug acting through blockade of neuronal Na+ channels. On the basis of these observations we report herein some novel 1,2,4-triazine derivatives having all the essential pharmacophoric elements required for anticonvulsant activity. The synthesized compounds were evaluated for their anticonvulsant activity against MES and ScPTZ seizure test at a dose level of 30,100 and 300 mg/kg at 0.5 and 4 h time interval. Preliminary screening showed that compounds 5-(4-chlorobenzyl)-6-(hydrazonomethyl-4-N,N-dimethylanilino)-3-phenyl-[1,2,4]-triazine and 5-(3-chlorobenzyl)-6-(hydrazonomethyl-4-N,N-dimethylanilino)-3-phenyl-[1,2,4]-triazine were found to be most potent anticonvulsant agents without any significant neurotoxicity and CNS depressant effects.



Lamotrigine



Designed Molecule

Biography

Dr. Mohd. Amir is working as an Associate Professor in the Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Hamdard University, New Delhi. He has published 65 research papers in reputed journals and participated in many national and international conferences.

mamir_s2003@yahoo.co.in