

Utility of 2,3-Diaryloxirane-2,3-Dicarbonitriles in Synthesis and QSAR Study of Newly Heterocyclic Derivatives as in Vitro Cytotoxic Agents

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Abstract

2,3-Diaryloxirane-2,3-dicarbonitriles have employed in heterocyclic synthesis in many organic reactions. Authors highlight its use as intermediate in the synthesis of various organic compounds through the reaction with different nitrogen nucleophiles as methyl hydrazine, thiourea, thiosemicarbazide, methyl glycinate and others to furnish new heterocyclic derivatives. They are also used as key starting materials to construct some important heterocyclic compounds. Structures of all newly synthesized products are substantiated by studying their micro analytical and spectral data. Some of newly synthesized compounds were evaluated for their in vitro cytotoxic effects against Hep-G2 carcinoma cell lines. Most of the newly synthesized compounds (1a, 2a, 2d, 3, 4, 5, 6a, 6c, 6d, 7a and 7b) inhibited cell proliferation with IC₅₀ values in range of 0.52–5.21 μ M. Compounds 5, 6a, 6d, and 7b emerged as the most active members.

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