Synthesis of Novel Spiro Heterocyclic Indeno[1,2-*b*]quinoxaline and Evaluation of their Biological Activities

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Abstract

The Spiro heterocyclic compounds with nitrogen in five- and six-membered rings are important synthetic targets that are often found in various biologically active molecules. They are considered to be privileged scaffolds in medicinal chemistry due to their broad range of biological activities including anticancer, antimalarial, and antituberculosis, and progesterone receptor agonists. A variety of carbonyl compounds undergo smooth addition with α- amino acids and indeno[1,2-b] quinoxalin-11-one in acetonitrile under ambient conditions to produce the corresponding spiro-heterocyclic derivatives in good yields with excellent selectivity. It is an entirely new strategy to construct the spirocycles in a one-pot operation through a 1,3-dipolar cycloaddition in regio and diasteroselective cascade process. The reaction involves generation of azomethineylides as intermediate which was derived from reactive primary or secondary amines. The synthesized molecule has been characterized by ^{1}H-NMR, ^{13}C-NMR, and Mass spectroscopy. It also may be subjected to the *in-vitro* testing for biological applications.

