

Heterocyclic Steroids

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Steroids are bioactive compounds involved in many biological functions exhibiting a wide spectrum of biological activities. Steroids consist of three cyclohexane and one cyclopentane rings arranged in a precise molecular configuration and display diverse chemical reactivities. Recently, structural modifications of the steroidal rings particularly the cyclopentanophenanthrene ring system have been an attractive strategy to synthesize active molecules with less or no harmful side effects. Introduction of the heteroatoms such as nitrogen, oxygen, and/or sulfur or modifications of the steroidal skeleton with the heterocyclic ring provide steroid molecules with a diverse array of biologically active compounds and are termed as heterocyclic steroids. Steroidal compounds that are inactive or inadequately active can be transformed into more potent forms by executing modifications in the steroidal skeleton. The introduction of the heteroatoms or modification of the steroidal backbone is a challenging task for organic chemists and often requires the exploration of new synthetic reactions. Researchers are focusing on executing modification to the steroidal ring to obtain pharmaceutically active novel heterocyclic steroids displaying anti-inflammatory, anabolic, androgenic, antibacterial, and anticancer activities. In a future perspective, the various biological applications of heterocyclic steroids are still limited, and a lot of research is still needed in the area of discovery of pharmaceutically active novel heterocyclic steroids with a new mechanism of action and with improved potency [1-8].

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