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Recent advances in the synthesis and utility of thiazoline and its derivatives

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Thiazolines and their derivatives hold significant importance in the field of medicinal chemistry due to their promising potential as pharmaceutical agents. These molecular entities serve as critical scaffolds within numerous natural products, including curacin A, thiangazole, and mirabazole, and play a vital role in a wide array of physiological reactions. Their pharmacological versatility encompasses anti-HIV, neurological, anti-cancer, and antibiotic activities. Over the course of recent decades, researchers have extensively explored and developed analogs of these compounds, uncovering compelling therapeutic properties such as antioxidant, anti-tumor, anti-microbial, and anti-inflammatory effects. Consequently, thiazoline-based compounds have emerged as noteworthy targets for synthetic endeavors. In this review, we provide a comprehensive summary of recent advancements in the synthesis of thiazolines and thiazoline-based derivatives, along with an exploration of their diverse potential applications across various scientific domains.

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1. Introduction

Heterocyclic compounds play a pivotal role in various domains such as pharmaceuticals, catalytic ligands, fine chemicals, and agrochemicals.¹ Among these compounds, thiazolines, sulfur-containing analogs, have received relatively less attention. Thiazolines constitute a specific class of organic compounds characterized by a five-membered ring structure composed of


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