Greener Organocatalytic Synthesis of Heterocyclic Compounds

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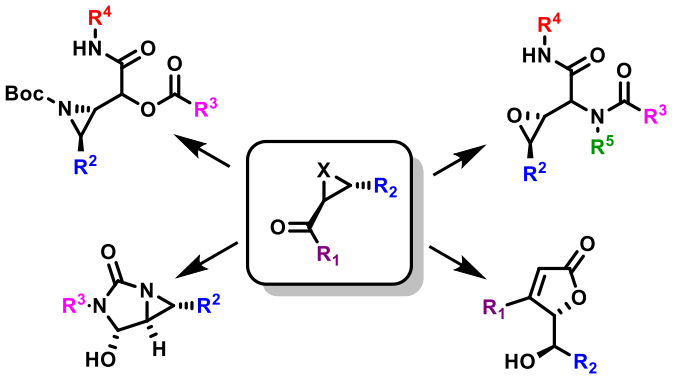
ABSTRACT

Three-membered ring heterocycles are key intermediates for the synthesis of biologically relevant compounds. Looking for greener methods to prepare these heterocycles, we have been taking advantage of the combination of organocatalysis with a diverse set of multicomponent reactions.[1] In this sense, we have developed a new synthetic method to peptidomimetics via one-pot tandem organocatalyzed asymmetric epoxidation/Passerini MCR using an organocatalyst developed in our research group, which allowed the use of a greener solvent mixture, ethanol/water.[2] Continuing our efforts in this area, we have reported an alternative protocol to synthesize reduced hydantoins by an organocatalyzed aziridination between α,β-unsaturated aldehydes and protected amines using the Jørgensen-Hayashi catalyst.[3] Furthermore, a new metal-free sequential strategy for the asymmetric synthesis of substituted γ-butenolides having epoxychalcones as advanced intermediate, has also been recently described.[4] In this presentation, our latest results in greener organocatalytic synthesis of heterocyclic compounds will be discussed.

GRAPHICAL ABSTRACT



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