Derivatization of carbocycles synthesized from the photochemical transformation of 4-pyrones

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Photochemical processes are prevalent in many fields of organic chemistry and have gained more attention in recent years.[1] Early mechanistic studies of the photochemical activity of 4-pyrones showed that trapping by a hydroxylic solvent is a significant pathway, with a bicyclic oxyallyl zwitterion acting as a plausible intermediate.[2,3] A key drawback of photochemical processes is the limited options for scaling up, as the efficiency of photon penetration decreases with larger reactor sizes.[4,5] The use of continuous flow to address this setback has garnered widespread attention.[6]

Herein, we report the optimization of the synthesis of functionalized carbocycles, specifically 4-hydroxy-2-cyclopentenones, under photochemical irradiation in both batch and continuous flow settings (**Figure 1**). Additionally, these promising intermediates were further functionalized in an attempt to obtain potential biologically active compounds.

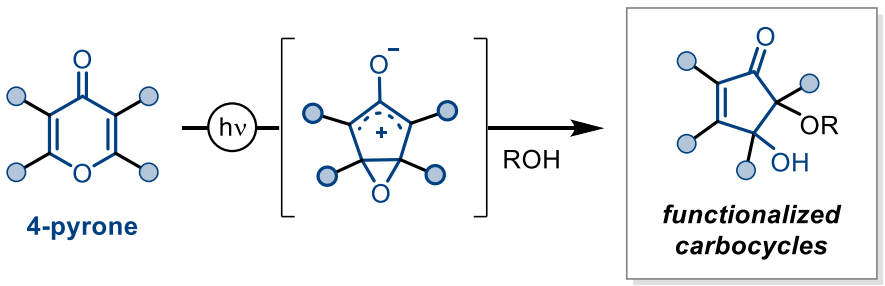

Figure 1. Conversion of 4-pyrones to 4-hydroxy-2-cyclopentenones under UV light irradiation.

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