Organophotocatalytic Aerobic Oxygenation of Phenols in a Visible-Light Continuous-Flow Photoreactor

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Abstract:
A mild photocatalytic phenol oxygenation enabled by a continuous flow photoreactor using visible light and air overpressure is presented herein. Products for wide-ranging applications, including the synthesis of vitamins, were obtained in high yields by means of a simple set-up with precise control panels. The reactor design permits the use of low photocatalyst loadings to promote singlet oxygen generation. It is anticipated that the efficient gas-liquid reaction for the high-yielding formation of quinones with air contributes to a circular economy and sustainable synthesis by bypassing the production of hazardous metal waste streams and avoiding the use of chlorinated solvents.

References