

PLENARY PRESENTATIONS

COMBINATION OF PHOTOCATALYSIS AND CONTINUOUS-FLOW TECHNOLOGY FOR THE SYNTHESIS OF BIOACTIVE COMPOUNDS AND ITS PRECURSORS

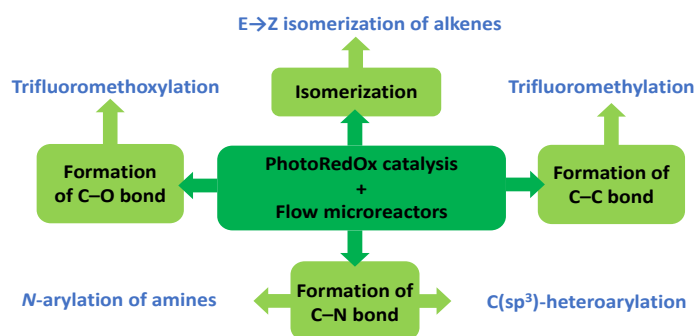
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The combination of photoredox catalysis and continuous-flow technology provides a powerful approach to the synthesis of valuable organic compounds that are difficult to access using traditional stoichiometric or metal-catalyzed methods. The precise control of reaction parameters, efficient irradiation, and enhanced mass and heat transfer offered by continuous-flow systems can improve the efficiency, reproducibility, and scalability of photochemical transformations.

We have developed several efficient continuous-flow approaches to photochemical transformations, enabling the synthesis of bioactive compounds, their precursors, and derivatives. These include trifluoromethylation of (het)arenes [1], *N*-(hetero)arylation of amines [2], C(sp³)-heteroarylation [3], trifluoromethoxylation [4] and photocatalytic *E*→*Z* isomerization of alkenes. In these transformations, continuous-flow technology enabled efficient light utilization and precise control over reaction conditions, providing a practical platform for the development and intensification of photochemical synthetic processes.



Overall, our results demonstrate the potential of combining photoredox catalysis with continuous-flow technology for the efficient synthesis of structurally diverse and potentially bioactive organic compounds, while offering opportunities for improved scalability and process efficiency.

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References:

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4. A.V. Nyuchev et al. *Beilstein J. Org. Chem.* **2020**, 16, 1305–1312.