Novel Bifunctional One-component Organocatalysts for the Coupling of Carbon Dioxide and Epoxides

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Only few examples of organocatalysts for the synthesis of cyclic carbonates via the coupling of CO_2 and epoxides under the mild condition of room temperature have been reported in the literature. However, they needed high level of catalyst loading (>5 mol%), elongated reaction time(>18 h), or high CO_2 pressure (>10 bar). Therefore, the development of new catalytic systems at milder condition would be required for a true green chemical process. We have developed novel bifunctional one-component organocatalysts that resemble scorpions effectively couple carbon dioxide and epoxides under room temperature, low-catalyst-loading (2 mol%), low-carbon-dioxide-pressure (1-10 bar), and solvent-free conditions.[1] Further details will be provided in the presentation.

References

1) "Scorpionate Catalysts for Coupling CO_2 and Epoxides to Cyclic Carbonates: A Rational Design Approach for Organocatalysts" *J. Org. Chem.* 2018, *83*, 9370-9380.