REUSABLE AND WATER-TOLERANT CATALYSTS FOR SYNTHESIS OF OXAZOLIDINONES FROM CARBON DIOXIDE AND AZIRIDINES UNDER SOLVENT-FREE CONDITIONS

Y. Wu, L.-N. He, Y. Du

State Key Laboratory and Institute of Elemento-Organic Chemistry, Nankai University, Tianjin, 300071, P. R. China

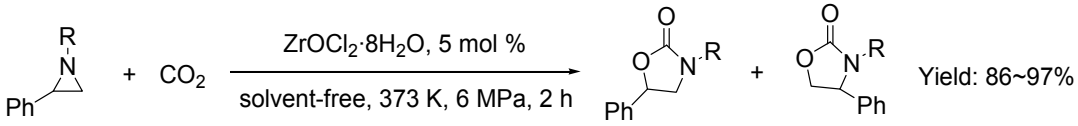
heln@nankai.edu.cn

Cyclic oxazolidinones are important heterocycles by virtue of their biological activities, and widely used as antibacterial agents in the pharmaceutical industry[1]. Chiral oxazolidinones also have utility in various organic transformations as chiral auxiliaries and intermediates[2]. Thus, a growing effort has been devoted toward the efficient and selective preparation oxazolidinones.

The [2+3] coupling between aziridine and CO_2 is an attractive route to the formation of oxazolidinones. In this context, there is an urgent need to develop more efficient, convenient and environmentally benign catalysts systems, which have high activity to yield the desired products under mild conditions.

In recent years, $ZrOCl_2 \cdot 8H_2O$ has gained much attention as catalysts due to its moisture stable, low toxicity, commercial availability at low cost, ease of handling, high catalytic activity and reusability[3].

The heterogeneous catalytic performance of the $ZrOCl_2 \cdot 8H_2O$ for the cycloaddition of CO_2 to aziridines was investigated. It is demonstrated that the catalyst was very active, selective, and stable under the given reaction conditions, and could be easily separated from the products and reused for at least five times without loss in activity. Furthermore, the absence of solvents makes the processes environmentally friendly.



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