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C-C bond cleavage of aziridines

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Aziridines exhibited intriguing and diverse reactivity, and thus have became unique and versatile synthons in organic synthesis. C–N/C-C bond cleavage of aziridine ring is a useful way to serve as three-atom synthons with extensive applications in organic synthesis. [1]

In contrast with ordinary solvents, such as Volatile Organic Compounds (VOC), DESs have a very low vapour pressure, and thus are non-flammable. The same reference mentions that DESs have a relatively high viscosities which might hinder their industrial applications as they might not flow easily in the process streams. DESs favorably possess low densities and can be liquid at a wide range of temperatures. Other studied properties for some DESs are their electrical conductivities, pH indices and surface tensions, which might be added to this article by any contributor.[3]

Unexpected regioselective oxidation of ketoaziridines to the corresponding aldehydes with choline chloride/thiourea is described. This regio-selective reaction presumably precedes via a domino sequence C-C/C-N cleavage of ketoaziridine ring. This metal-free method proved to be efficient for the oxidative cleavage of several ketoaziridines in moderate to good yields.

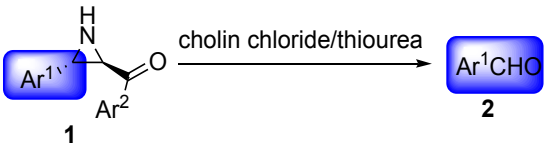

Figure 1.Regio-selective oxidation reaction of ketoaziridines

References

[1] H. A.; Samimi, M. Y. Bohari and F. Saberi, Synthesis, 2015, 47, 129.
[2] H. A.; Samimi and M. Y. Bohari, Tetrahedron Lett. 2016, 57, 223.
[3] G. García, S. Aparicio, R.Ullah and M.Atilhan,Energy Fuels, 2015, 2616.

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