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An Efficient Protocol for Deprotection of Oximes to Carbonyl Compounds Catalyzed by CrO₃ Supported on Nano Silica

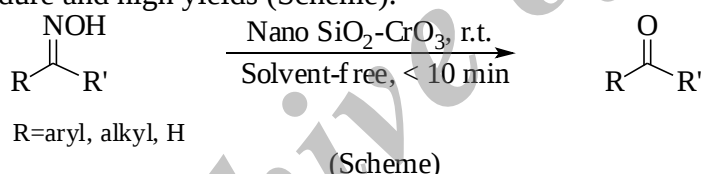
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Recovery of Aldehydes and ketones from oximes is one of the most important reactions in organic synthesis, because oximes are served as an efficient protective group for carbonyl compounds which are extensively used for the purification of carbonyl compounds. At the same time, oximes could be prepared from non-carbonyl compounds, and the regeneration of carbonyl compounds from oximes represents a potential route for synthesis of aldehydes and ketones. Various methods including hydrolysis by acids, reductive deoxygenation and oxidative deoxygenation have been developed for this process. Unfortunately in most of the reported protocols, using stoichiometric amounts of acid, oxidizing or reducing agents incorporated with low to moderate yields are major shortcomings and puts some restrictions for the application for large scale synthesis. Therefore, the development of clean, selective and efficient protocol for cleavage of nitrogen-containing derivatives specially oximes to afford carbonyl compounds is highly desirable.

We report here an efficient and rapid deoxygenation method using nano CrO₃-AlCl₃ system, for conversion of various oximes to the corresponding carbonyls under solvent-free conditions. This method offers some advantages in term of clean reaction conditions, short reaction times, easy work-up procedure and high yields (Scheme).



References

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