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2,2′-BIPIPERIDINE DERIVATIVES AS ORGANOCATALYSTS FOR ASYMMETRIC MICHAEL ADDITION

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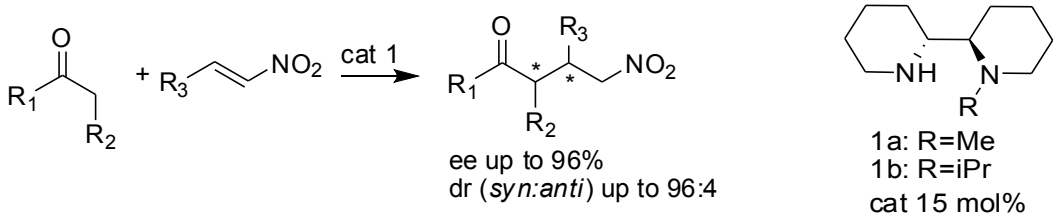
Michael addition of enamines derived from aldehydes and ketones to nitroolefins is an important C-C bond formation reaction in which two stereogenic centres are generated. For this transformation to take place a catalyst is needed. Previously we have reported the use of 3,3'-bimorpholine derivatives as efficient organocatalysts in Michael addition[1]. Continuing our research in this field we have synthesized new 2,2′-bipiperidine derivatives[2] and investigated their potency as organocatalysts in current reaction.



It was found that bipiperidine derivatives are even more selective catalysts than bimorpholine derivatives. Best results were obtained with iPr-2,2'-bipiperidine. Reactions were fast and afforded high yields, with good to high diastereo- and enantioselectivity. However, the scope of the reaction is limited to aldehydes as no reaction occurred with ketones even at elevated temperature during prolonged reaction time.

References

1. Mosse, S.; Laars, M.; Kriis, K.; Kanger, T.; Alexakis, A. *Org.Lett.* **2006***, 12*, 2559-2562.

2. Laars, M.; Kriis, K.; Kailas, T.; Müürisepp A-M.; Pehk, T.; Kanger, T.; Lopp, M. *Tetrahedron: Asymmetry.* **2008**, *19*, 641-645.