

Applications of Non-Noble Metal Catalysts in the Synthesis of APIs and Their Intermediates

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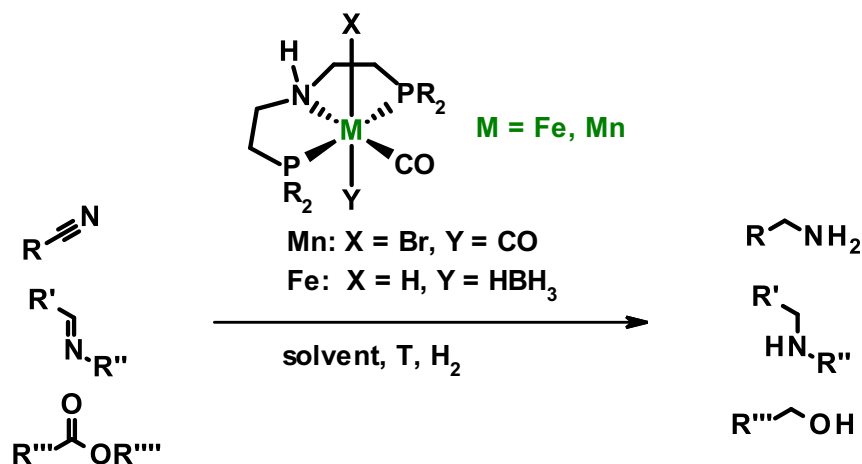
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Noble metal (*e.g.* Rh, Ir, Pt, Pd, Ru) based catalysts are not only expensive, but also more toxic and less abundant compared to non-noble metal (*e.g.* Fe, Zn, Cu, Ni) based analogues. Therefore, the replacement of the state-of-the-art noble metal catalysts by cheaper and particularly less toxic ones, has recently become a major target in catalysis.^[1]

The application of non-noble metal based PNP pincer catalysts (Fe, Mn) in the hydrogenation of various functional groups, such as esters, nitriles and imines (Scheme 1),^[2,3] as well as two case studies with applications on molecules with pharmaceutical relevance will be presented.^[3]

Scheme 1:



- [1] B. Plietker, (Ed.), *Iron Catalysis in Organic Chemistry: Reactions and Applications*, Wiley-VCH, Weinheim, **2008**.
- [2] a) S. Elangovan, B. Wendt, C. Topf, S. Bachmann, M. Scalone, A. Spannenberg, H. Jiao, W. Baumann, K. Junge, M. Beller, *Adv. Synth. Catal.* **2016**, 358, 820; b) S. Lange, S. Elangovan, C. Cordes, A. Spannenberg, H. Junge, S. Bachmann, M. Scalone, C. Topf, K. Junge, M. Beller, *Catal. Sci. Technol.* **2016**, 6, 4768.
- [3] S. Bachmann, A. Budinská, O. Engl, S. Hildbrand, C. Pflieger, R. Reents, M. Scalone, E. Trachsel, manuscript in preparation.