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Molecular Defined Manganese Catalysts for Hydrogenation of Esters

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PURPOSE OF THE ABSTRACT

The development of non-noble metal-based catalytic systems has been increasing since the beginning of the century, notably in the field of reduction or hydroelementation reactions. Significant progress has been accomplished with catalysts based on iron and cobalt. Manganese is the third most abundant metal in the Earth's crust (after iron and titanium). Its biocompatibility as well as its availability and low cost are undeniable assets for the development of catalytic systems of societal and environmental interest. Surprisingly, its use as an alternative to noble metals in hydrogenation and related reactions had not been considered prior to the work of Beller in 2016.[1] From then on, examples of reduction reactions catalyzed by well-defined manganese complexes have flourished in the literature.[2] Our group has contributed to the field with the development of Mn-based catalytic systems relying on metal-ligand cooperation for the hydrogenation (with H2 or iPrOH) of carbonyl derivatives.[3] In this context, the results obtained in ester hydrogenation will be presented in detail.

FIGURES

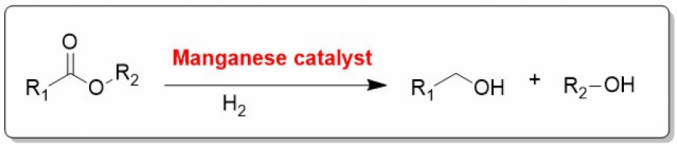

FIGURE 1

Figure 1.
Manganese-catalyzed hydrogenation of esters to alcohols.

FIGURE 2

KEYWORDS

manganese | hydrogenation | ester | catalysis

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