Biomimetic catalysts based on metalloporphyrin MOFs

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Introduction

During the past years, a great effort has been devoted to the anchoring of catalysts into MOFs in order to achieve heterogeneous catalysts [1]. In this sense, an innovative approach consists on using metalloporphyrins as coordination-network synthons mimicking their natural catalytic activity in order to reproduce it in the solid state [2].

The work herein presented explores the activity of µ-O-[FeTCPP]nDMF (TCPP= meso-tetracarboxyphenylporphyrin; n=16) and [CoTPPS0.5(bipy)(H2O)] 6H2O [3] (TPPS= mesotetrasulphonatophenylporphyrin, bipy= 4,4'-bipyridine) compounds as heterogeneous catalysts on oxidation reactions of different organic substrates [4].

Catalytic Properties

Conclusions

- The metalloporphyrinic structural units of both compounds play as heterogeneous catalysts.
- [FeTCPP]nDMF shows excellent catalytic behaviour for different oxidation of alcohols.
- Catalytic tests show that the compound [CoTPPS0.5(bipy)(H2O)] 6H2O exhibits selectivity for the cyclohexane oxidation.

References


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