Catalytic Oxidation of Allylic Alcohols to Methyl Esters

Aerobic oxidation of allylic alcohols to methyl esters using gold nanoparticles supported on different metal oxide carriers has been performed successfully under mild conditions (room temperature, 0.1 MPa O₂) without significant loss of catalytic activity. The effects of different reaction parameters are studied to find the suitable reaction conditions. All catalysts are characterised by XRD, XRF and TEM. Among these catalysts, Au/TiO₂ showed the most efficient catalytic activity towards the selective oxidation of allylic alcohols to the corresponding esters. Moreover, the same Au/TiO₂ catalyst is used to optimize all the reaction parameters including the significance of the base to promote the reaction. Due to the mild reaction conditions and high conversions as well as selectivity, the utilization of titania-supported gold nanoparticle catalysts represents a benign reaction protocol to synthesize methyl esters from allylic alcohols.

General information
Publication status: Published
Organisations: Department of Chemistry, Centre for Catalysis and Sustainable Chemistry, Organic Chemistry, Technical University of Denmark
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Pages: 1380-1386
Publication date: 2017
Peer-reviewed: Yes

Publication information
Journal: Topics in catalysis
Volume: 60
Issue number: 17-18
ISSN (Print): 1022-5528
Ratings:
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 2.57 SJR 0.965 SNIP 0.716
Web of Science (2017): Impact factor 2.439
Web of Science (2017): Indexed yes
Original language: English
Keywords: Oxidation, Allylic alcohol, Methyl ester, Gold, Nanoparticles, Dioxygen
Electronic versions:
paper_final. Embargo ended: 02/07/2018
DOIs:
10.1007/s11244-017-0821-1
Source: FindIt
Source-ID: 2370984816
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review