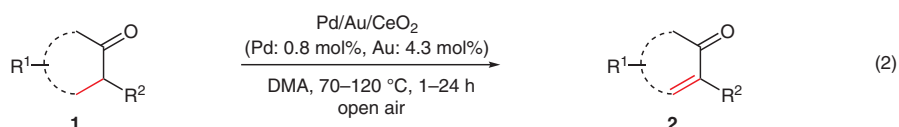
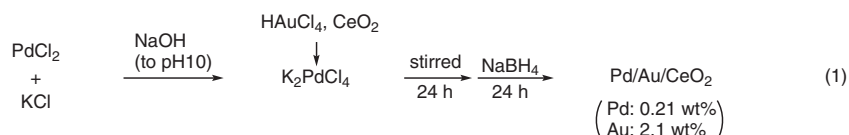


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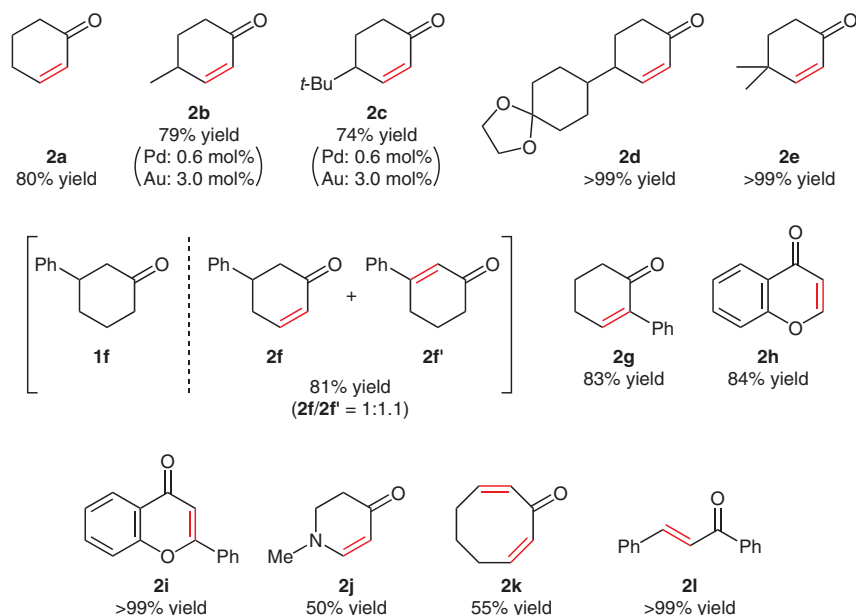
CeO₂-Supported Pd(II)-on-Au Nanoparticle Catalyst for Aerobic Selective α,β -Desaturation of Carbonyl Compounds Applicable to Cyclohexanones

ACS Catal. 2020, 10, 5057–5063.

α,β -Desaturation of Ketones Catalyzed by Palladium(II) on Gold Nanoparticles Supported on Ceria



Selected results:



Significance: Palladium(II) on gold nanoparticles supported on CeO₂ (Pd/Au/CeO₂) was prepared according to equation 1. Pd/Au/CeO₂ catalyzed the desaturation of ketones **1** under open-air conditions to give the corresponding α,β -unsaturated ketones **2** in up to >99% yield (eq. 2).

Comment: Pd/Au/CeO₂ was characterized by XPS, XANES, XRD, HAADF-STEM, STEM-EDS and ICP-AES analyses. In the desaturation of cyclohexanone (**1a**) to cyclohex-2-en-1-one (**2a**), the catalyst showed a high turnover frequency (122 h⁻¹ based on Pd). This catalysis offers a viable alternative to the Saegusa-Ito oxidation.

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Synfacts 2020, 16(08), 0947 Published online: 21.07.2020
DOI: 10.1055/s-0040-1706878; Reg-No.: Y07120SF

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Category

Polymer-Supported
Synthesis

Key words

palladium catalysis

gold catalysis

desaturation
cyclohexanones

cyclohexanones

dioxygen

Synfact
of the
Month

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