

Pd/DNA as a highly active and recyclable catalyst for aminocarbonylation and hydroxycarbonylation in water : the effect of $\text{Mo}(\text{CO})_6$ on the reaction course.

Autorzy

Mehmet Mart

Włodzimierz Tylus

Anna M. Trzeciak

Rok wydania

2019

Czasopismo

Molecular Catalysis

Numer woluminu

462

Strony

28-36

DOI

10.1016/j.mcat.2018.10.013

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

A Pd/DNA catalyst was prepared using $\text{Pd}(\text{OAc})_2$ and salmon fish sperm DNA in a $\text{H}_2\text{O}/\text{EtOH}$ solution. This catalyst contained Pd(II) coordinated to DNA and ca. 20% of Pd(0) nanoparticles. For the first time, Pd/DNA was applied with very good results in the aminocarbonylation of iodobenzene with different amines in water at 1 atm of CO and with $\text{Mo}(\text{CO})_6$ as a CO source. During the catalytic process, Pd(II) was reduced to catalytically active Pd(0), as evidenced by XPS. The aminocarbonylation of iodobenzene with *n*-hexylamine performed with $\text{Mo}(\text{CO})_6$ proceeded with better selectivity than with gaseous CO. Very good results were also obtained with other primary amines, while secondary amines gave a lower yield of the relevant amides. The recovered Pd/DNA catalyst was used in four subsequent runs with high activity.

Słowa kluczowe

palladium, nanoparticles, DNA, Aminocarbonylation

Adres publiczny

<https://doi.org/10.1016/j.mcat.2018.10.013>

Strona internetowa wydawcy

<http://www.elsevier.com>