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Ligand-free palladium-catalyzed tandem pathways for the synthesis of 4,4-diarylbutanones and 4,4-diaryl-3-butenones under microwave conditions.

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Rok wydania

2019

Czasopismo

Applied Organometallic Chemistry

Numer woluminu

33

Strony

e4870/1-e4870/9

DOI

10.1002/aoc.4870

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

Two efficient Pd-catalyzed tandem pathways for the synthesis of 4,4-diaryl-2-butanones and 4,4-diaryl-3-buten-2-ones were elaborated. The first step in both procedures was the Heck coupling of methyl vinyl ketone (MVK) and various aryl iodides leading to 4-aryl-3-buten-2-one with the yield of up to 92% in 1 hr. The second step performed with the same catalyst and a new portion of aryl iodide in the presence K_2CO_3 as a base produced 4,4-diaryl-3-buten-2-ones in high yield. Reaction selectivity changed completely to saturated 4,4-diaryl-2-butanones, reductive Heck products, when a tertiary amine was used instead of K_2CO_3. Due to the application of microwave irradiation (MW), the desired products were obtained in high yield in a short time (4 hr), using 0.5 mol% of the $Pd(OAc)_2$ catalyst without additional ligands.

Słowa kluczowe

diaryl-ketones, Heck coupling, MW irradiation, palladium, reductive Heck coupling

Adres publiczny

http://dx.doi.org/10.1002/aoc.4870

Strona internetowa wydawcy

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Plik został wygenerowany dnia 2026-06-19 03:39:46

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