Hydroamination of terminal alkynes mediated by W(0) complex: A convenient tool for new enamines synthesis

Autorzy

Izabela Czeluśniak

Paulina Pąchalska

Joanna Trojan-Piegza

Mariusz Majchrzak

Miłosz Siczek

Teresa Szymańska-Buzar

Rok wydania

2025

Czasopismo

Journal of Catalysis

Numer woluminu

446

Strony

116057/1-116057/11

DOI

10.1016/j.jcat.2025.116057

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

Herein, we report the efficient synthesis of *E*-enamines with 100% regioselectivity by the hydroamination of various terminal alkynes with secondary amines (piperidine and piperazine) mediated by easily accessible tungsten(0) complex, at smooth conditions. We have successfully broadened the hydroamination protocol to obtain various new *E*-divinylpiperazines with excellent regio- and stereoselectivities. The crystal structure of two of them was determined, which allowed receiving information, among others, on the conformation of the C–C double bond. Furthermore, the reaction allows facile access to enamines containing the isoindoline-1,3-dione fragment with high regioselectivity. Selected divinylpiperazines have also been investigated by photoluminescence excitation and emission examination. On the basis of the experimental results, the pathway of the catalytic hydroamination of alkyne with piperazine has been proposed.

Słowa kluczowe

Hydroamination, Tungsten catalyst, Alkynes, Secondary amines, Enamines, Divinylpiperazines

Adres publiczny

http://dx.doi.org/10.1016/j.jcat.2025.116057

Strona internetowa wydawcy

http://www.elsevier.com