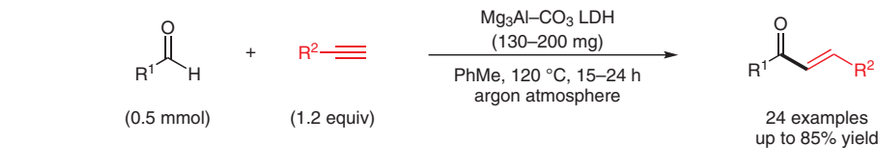
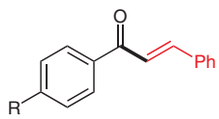
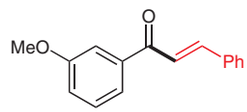
T. YATABE, N. MIZUNO, K. YAMAGUCHI* (THE UNIVERSITY OF TOKYO, JAPAN)
Transition-Metal-Free Catalytic Formal Hydroacylation of Terminal Alkynes
ACS Catal. **2018**, *8*, 11564–11569.

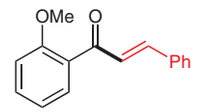
Formal Hydroacylation of Alkynes on Mg_3Al–CO_3-Layered Double Hydroxide

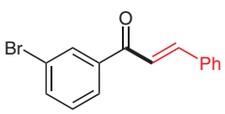


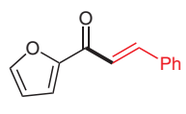
Selected examples:

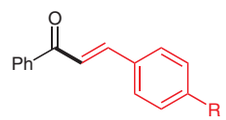


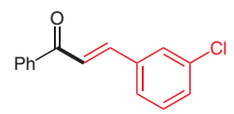


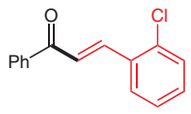


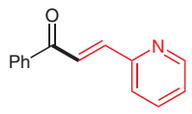


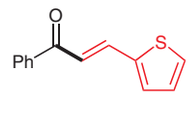


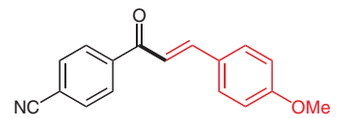












Significance: Mg_3Al–CO_3-layered double hydroxide (Mg_3Al–CO_3 LDH) catalyzed the formal hydroacylation of terminal arylalkynes with aromatic aldehydes under argon to give the corresponding diaryl α,β-unsaturated ketones in up to 85% yield (24 examples).

Comment: In the reaction of phenylacetylene with *p*-anisaldehyde, Mg_3Al–CO_3 LDH was recovered and reused three times with a slight loss of its catalytic activity (fresh: 91% yield; third reuse: 73% yield).

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Synfacts 2019, 15(03), 0283 Published online: 15.02.2019
DOI: 10.1055/s-0037-1611209; **Reg-No.:** Y01019SF

Category
Polymer-Supported Synthesis

Key words
transition-metal-free reaction
layered double hydroxide
hydroacylation
alkynes
aldehydes

Synfact of the Month