Tetrahedron

Tetrahedron Vol. 62, No. 19, 2006

Tetrahedron Symposium-in-Print Number 119

Microwave assisted organic synthesis

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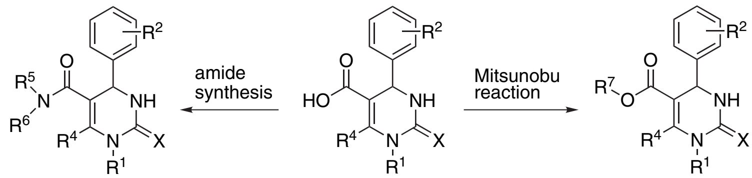
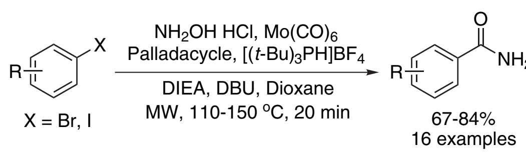
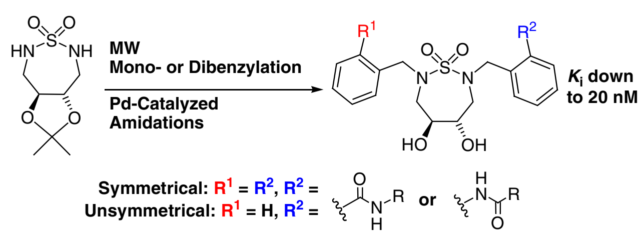
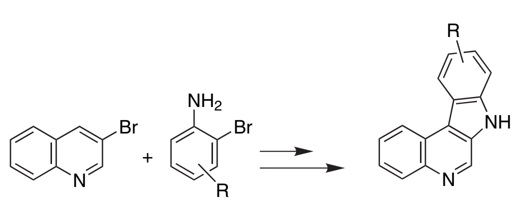
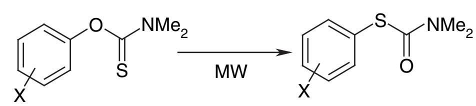
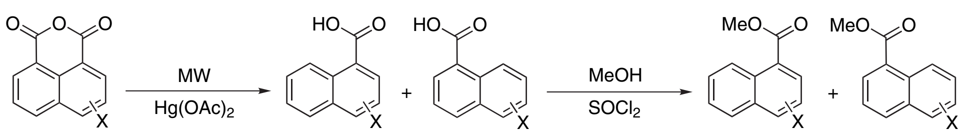

amide synthesis
Mitsunobu reaction

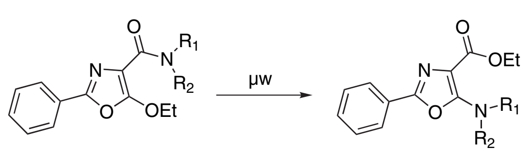

NH2OH HCl, Mo(CO)6
Palladacycle, [(t-Bu)3PH]BF4
DIEA, DBU, Dioxane
MW, 110-150 °C, 20 min
X = Br, I
67-84%
16 examples

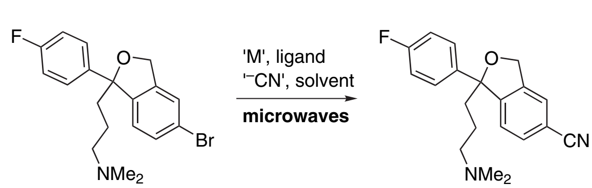

MW
Mono- or Dibenzylation
Pd-Catalyzed
Amidations
Ki down
to 20 nM
Symmetrical: R1 = R2, R2 =
Unsymmetrical: R1 = H, R2 =
or





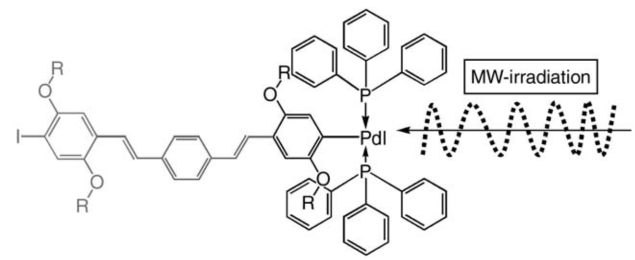


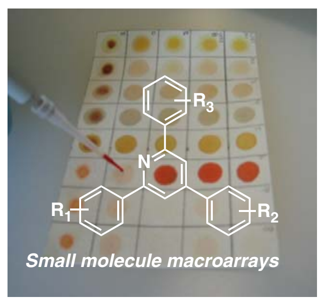


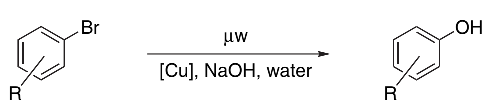


A microwave enhanced palladium catalysed cyanation procedure was optimised for citalopram. The method was demonstrated on multigram batch scale for the synthesis of escitalopram and in a stop-flow continuous process for citalopram.

In this paper we report the first MW assisted synthesis of poly(2,5-dibutoxy-1,4-phenylenvinylene) via Heck polycondensation. The facile synthesis of the higher lactones via Baeyer–Villiger reaction offers indeed an example for the MW-accelerating effect. A survey of our recent work is also given to provide examples for what we term special MW effects.







The direct conversion of aryl halides to the corresponding phenols has been achieved using microwave heating. High-temperature or near-critical water is used as the solvent in conjunction with a copper catalyst and a mineral base.

*Corresponding author
ⓘ+ Supplementary data available via ScienceDirect

COVER

The cover art is a collage bringing together some concepts of microwave-promoted synthesis. Microwaves, like all electromagnetic radiation, travel at the speed of light. They are of relatively low energy and cannot break chemical bonds, they can only make molecules rotate. They cause heating on a molecular level and can accelerate reactions, leading to a significant time saving and often improving product yields. The reaction shown is a Suzuki coupling. Using microwave heating, the Suzuki coupling can be performed in water using as little as 50 ppb palladium.

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ISSN 0040-4020