

Catalytic and regioselective synthesis of gem- or trans- α , β -unsaturated amides by carbonylation of alkyl alkynes with aniline derivatives by palladium(II) and phosphine.

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Abstract

Gem- α , β -unsatd. amides, e.g. I, were prepd.as major isomers (82%) by regioselective carbonylative addn. of alkyl alkynes, e.g. 1-heptyne, to anilines, e.g. aniline, in the presence of Pd(OAc)₂/1,3-bis(diphenylphosphino)propane/p-toluenesulfonic acid/CO as the catalytic system. However, the reaction catalyzed by Pd(OAc)₂/1,4-bis(diphenylphosphino)butane/H₂/CO in CH₂Cl₂ as a solvent affords trans- α , β -unsatd. amides, e.g. II, as the major isomer (82%).

