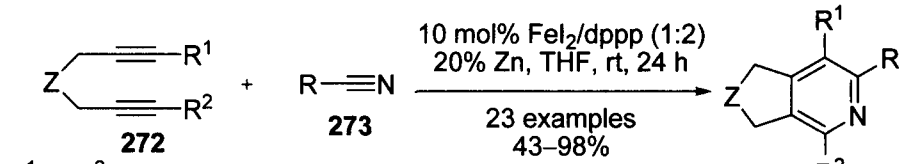
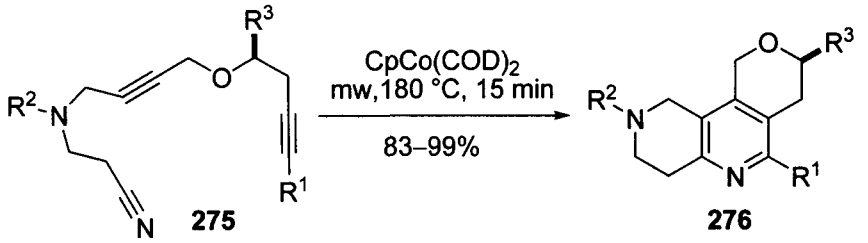
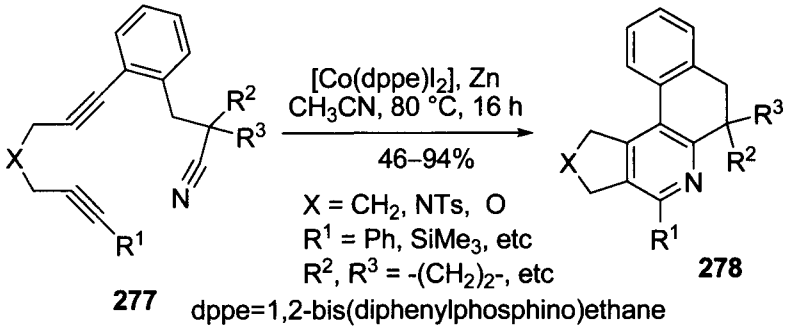
developed over the past few decades. For example, an iron-catalyzed [2 + 2 + 2]-cycloaddition of diynes **272** and unactivated nitriles **273** leading to pyridine compounds **274** at room temperature was reported recently.[177d] The catalyst is generated *in situ* from an inorganic iron salt such as FeI_2 and a diphosphine ligand such as 1,3-bis(diphenylphosphino)propane (dppp). The reaction exhibited high reactivity and regioselectivity with the optimized reaction conditions.



Unlike tethered diynes that are commonly seen in [2 + 2 + 2]-pyridine syntheses, nitrile-diyne substrates are less explored. Recently, Snyder and coworkers reported microwave promoted cobalt-catalyzed [2 + 2 + 2]-reaction of nitrile-diynes **275** to afford tetrahydronaphthyridines **276** in moderate to excellent yields.[178]





Chang and co-workers developed an intramolecular cobalt-catalyzed cyclotrimerization of both the symmetric and the asymmetric nitrile-diyne