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Recent development in the synthesis and synthetic applications of functionalized allylic compounds

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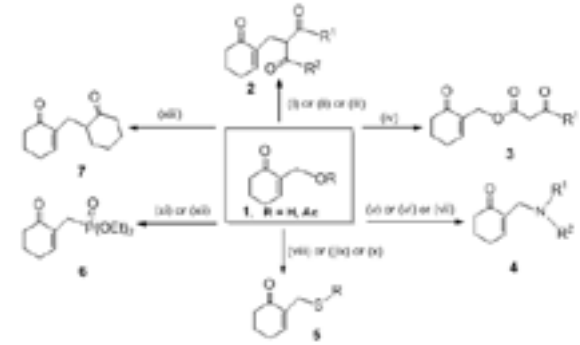
Allylic compounds are useful tools in organic chemistry and for the synthesis of natural products as well as biologically active targets. During the last decades, the Morita-Baylis-Hillman (MBH) adducts, as functionalized allylic derivatives bearing both an allyl moiety and an enone or enoate unit, have attracted much attention. A large number of synthetic applications, respecting the atom economy and implementing the organo-catalysis in aqueous medium or under solvent-free conditions, have been developed by our group and others. We report herein our findings dealing with the synthesis and reactivity study of differently functionalized novel allylic compounds derived from the MBH alcohols. The following scheme summarizes our main results on this topic.



Scheme 1: Conversions of MBH adducts 1 into various allylic compounds 2-7

Reagents & Conditions: (i) R=H, β-dicarbonyl compounds, DMAP; (ii) R=H, β-dicarbonyl compounds, $Pd(OAc)_2$, Et_3B; (iii) R=Ac, β-dicarbonyl compounds, Et_3N; (iv) R=H, β-keto, esters, Et_3N; (v) R=Ac, amines; (vi) R=H, amines, molecular sieves; (vii) R=H, amines, $Pd(OAc)_2$, Et_3B; (viii) R=Ac, RSH; (ix) R=H, RSH, *p*-TsOH; (x) R=H, RSH, molecular sieves; (xi) R=H, $P(OEt)_3$, DMAP, solvent-free; (xii) R=Ac, $P(OEt)_3$, DMAP, solvent-free; (xii) R=Ac, cyclohexanone or cyclopentanone enamines, $Pd(OAc)_2$, $ZnBr_2$.

Biography

Farhat Rezgui has received his Doctorate from the University of Tunis. In the course of the collaboration with Professor J F Normant's group, Paris 6, he worked (1996–1999) with Dr. P Mangeney and Professor A Alexakis on Chiral Dihydroquinolines. In 2000, he was appointed as the Professor of Organic Chemistry. His research focuses on development of new methods in Organic Synthesis, such as the functionalization of cyclic enones and reactivity study of densely functionalized Michael acceptors including cyclic and acyclic Morita-Baylis–Hillman adducts.

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