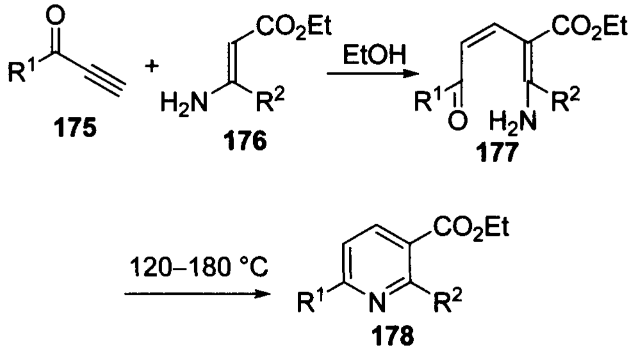
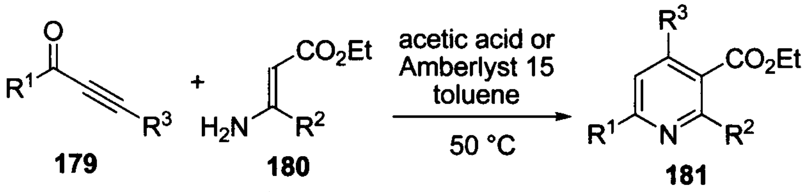
precursors, **175**) with enamines (β-amino crotonates, **176**). The δ-aminoketones **177** can be isolated and subsequently heated at temperatures greater than 120 °C to facilitate the cyclodehydration to afford **178**.



The Bagley group later developed a mild, single-step variant of the reaction, wherein acetic acid or Amberlyst 15 ion-exchange resin was used to promote cyclodehydration at a lower temperature (50 °C) to give 2,3,6-tri- and 2,3,4,6-tetra-substituted pyridines **181** with alkyl, aryl, heteroaromatic, heteroatom, and ester substituents in moderate to excellent yields.[121]



Alternatively, one could use Lewis acids[122] such as $ZnBr_2$, $Yb(OTf)_3$ or CuBr iodine in catalytic amounts, as well as catalytic amount of iodine.[123] Microwave irradiation was also applied in the reaction.[124]

The Bohlmann–Rahtz synthesis is viable for the construction of di- or tri-substituted pyridines and has been applied in the synthesis of complex target molecules. The Baldwin group[125] was one of the first to employ this method for the construction of pyridine substituted α-amino acids. Exposure of alkynyl ketone **182** to 3-aminocrotoyl ester **183** or ketone **184** in ethanol at reflux gave rise to the desired pyridyl-β-alanines **185** and **186**, respectively, which were subsequently deprotected to afford the α-amino acid L-azatyrosine analogues **187** and **188**, respectively.[125a]