Abstract:

When treated with an excess of trimethylsilyl trifluoromethanesulfonate (TMSOTf) and 2,6-lutidine, certain aldehydes couple to form β, β-disubstituted styrenes in good yield (25-99%). The reaction appears to proceed via an aldehyde-aldehyde aldol coupling between an α, α-disubstituted aldehyde, which acts as an enol silane precursor, and an aromatic aldehyde to form a β-silyloxycarbonyl. Subjection of this aldol product to the reaction conditions produces the styrene. A preliminary investigation of the stereoselectivity of the reaction has shown that the $E$ isomer is favored. Further research will examine whether this isomer preference arises from the ratio of aldol product isomers or is thermodynamically driven during formation of the styrene.