Four-component Synthesis of 1,3,4-Oxadiazole Derivatives from (N-Isocyanimino)triphenylphosphorane, (E)-Cinnamic Acids, Acetaldehyde and Secondary Amines

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The 1 : 1 iminium intermediate, generated by the addition of a secondary amine to acetaldehyde is trapped by the (N-isocyanimino)triphenylphosphorane in the presence of an (E)-cinnamic acid derivative, leading to the formation of the corresponding iminophosphorane intermediate. Disubstituted 1,3,4-oxadiazole derivatives are formed via intramolecular aza-Wittig reaction of the iminophosphorane intermediates. The reactions were completed under neutral conditions at room temperature, and the corresponding disubstituted 1,3,4-oxadiazole derivatives were produced in excellent yields.

\textbf{Key words:} (N-Isocyanimino)triphenylphosphorane, (E)-Cinnamic Acid, Acetaldehyde, 1,3,4-Oxadiazole, aza-Wittig Reaction, Secondary Amine