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Multicomponent Strategies for Direct Synthesis of N-heterocycles from Diketene

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Diketene (DK) is a reactive and versatile commercially available compound. It is frequently used for the introduction of substituted C2, C3, and C4 parts into organic compounds. It is also best known as an agent for the construction of acetoacetic acids. Noticeably, DK is an ideal compound for chemical investigation, since it is easily available, cheap, and reactive.¹ It possesses electrophilic and nucleophilic sites which are capable of undergoing numerous reactions. Because of the significance and unique reactivities of ketenes and DK, we have demonstrated the usages of ketenes and DK as the privileged synthons in the formation of heterocyclic derivatives.^{2,3}

Our group has been pursuing different methods for diverse potential biological activity nitrogen-containing heterocycles syntheses using multicomponent reaction since the past few years. In continuation of our efforts on the applications of DK as an outstanding synthon in the synthesis of heterocyclic compounds, herein, we wish to report the efficient and simple methods for the synthesis of poly-substituted nitrogen-containing heterocycles through one-pot multicomponent reactions involving DK. All reactions are easily performed and proceed with high efficiency under very simple and mild conditions without any catalyst and give good yields avoiding time-consuming, costly syntheses, and tedious workup and purification of products.

Biography

M M Heravi was born in 1952 in Mashhad, Iran. He received his M. Sc. and Ph. D. degrees from Salford University, England, in 1977 and 1980. He completed his doctoral thesis under the supervision of the late Jim Clark. He started his career as a research fellow in Daroupakhsh (a pharmaceutical company) in 1981 Tehran, Iran and joined as an assistant professor at Ferdowsi University of Mashhad, Iran, in 1983 and was promoted to associate professor in 1993 and full professor in 1997. In 1999 he moved to Alzahra University of Tehran, Iran as professor of chemistry where he is still working. He has previously been a visiting professor at UC Riverside, California, USA and Hamburg University, Hamburg, Germany. His research interests focus on heterocyclic chemistry, catalysis, organic methodology and green synthetic organic chemistry.

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