

# 24<sup>th</sup> Global Organic & Inorganic Chemistry Conference

July 18-19, 2018 | Atlanta, USA

## Diketene-based multicomponent reaction strategy toward N-heterocycles

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Diketene (4-methylene-oxetan-2-one or DK) consists of a four-membered lactone ring adjacent to a methylene function and it can be considered the anhydride of acetoacetic acid. DK is a reactive, readily available, and versatile molecule. Diketene also reacts with alcohols and amines to the corresponding acetoacetic acid derivative. DK appears to be an ideal molecule to be used in organic transformations. Diketene possesses electrophilic and nucleophilic sites which are capable of undergoing numerous reactions. In 1986 the chemistry of DK has been extensively and comprehensively reviewed by R.J Clemens. In the last decade, various interesting multicomponent reactions based on DK successfully achieved leading to the construction of a wide variety of heterocyclic systems. Very recently, we also published on the applications of DK as a privileged synthon in the synthesis of heterocyclic compounds as a chapter in *Advances in Heterocyclic Chemistry*. Continuing our efforts in the development of multicomponent reaction for the synthesis of potential biological activity nitrogen-containing heterocycles, in the present work, we describe the efficient synthesis of poly-substituted nitrogen-containing heterocycles, such as 1,4-dihydropyridines, pyrido[1,2-a] pyrimidines and spiro[indoline-3,4'-pyrano-pyrazole] derivatives via MCRs involving diketene.

### Biography

Majid M Heravi has completed his PhD at the age of 28 years from Salford University, England and postdoctoral studies from University of California at Riverside, USA. He is the professor in organic chemistry at Alzahra University. He has published more than 700 papers in reputed journals cited by Web of Science and Scopus and has been serving as guest editor for 3 thematic issues of *Current Organic Chemistry*. He has also published 11 chapters as sole corresponding author in *Advances in Heterocyclic Chemistry* in which five of them have focused on the chemistry of ketenes and diketene.

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