



## Synthesis of new pyrrolizine derivatives via ring annulation under green conditions

Hossein Eshghi\*, Mohammad Rahimizadeh, Neda Attaran, Mehdi Bakavoli

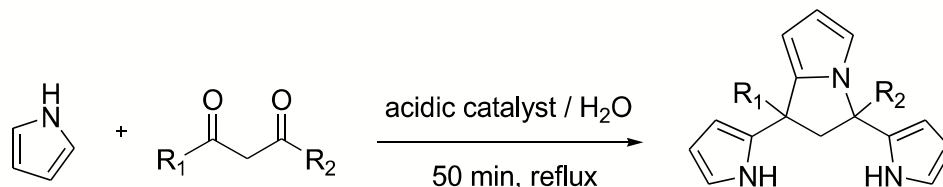
Department of Chemistry, School of Sciences, Ferdowsi University of Mashhad, Mashhad 91775-1436, Iran

Email: [heshghi@ferdowsi.um.ac.ir](mailto:heshghi@ferdowsi.um.ac.ir)

Pyrrolizine and its derivatives have been attracting growing interest from synthetic chemists for their various and essential biological activities [1,2]. Also, these bicyclic heterocycles are present in naturally occurring alkaloids. On the other hand, bipyrrroles are crucial intermediates for the synthesis of substituted porphyrins, expanded porphyrins, porphyrin analogues (dipyrins, calixpyrroles, chlorins, corroles) and polypyrrolic polymers that are useful in chemistry, physics, biology, medicine and engineering [3,4]. So, bipyrrroles with pyrrolizine nucleus make these molecules attractive for scientists [5].

Pyrrolizines were, in general, synthesized via multi-step reactions with low yields. However, the growing interest on these molecules led synthetic chemists to find new routes in order to improve reaction conditions.

In this report, we use an environmentally friendly homogeneous acidic catalyst for a condensation reaction of pyrrole with diketones in the absence of any organic solvent. This reaction revealed a ring annulation resulting in the formation of a bipyrrrole moiety bridged via 2,3-dihydro-1H-pyrrolizine through its 1,3-position. The FT-IR, <sup>1</sup>H-NMR and elemental analysis confirm the structure of compounds.



Scheme 1.

### References:

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