



Development of Green synthetic strategies involving formylated ketones

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Abstract: In view of the synthetic potential and biological properties of enaminones we have developed green synthetic protocols by the reaction of formylated acetophenones with primary amines in aqueous media assisted by KHSO₄. This reaction was further generalized in the presence of ultrasound thus achieving the goals within minutes instead of hours (Scheme 1). Prompted by these findings, we developed synthetic strategies for biologically potential novel pyrazolopyrimidines by reacting 2 with dinucleophiles 6 in aqueous media under ultrasound irradiation.

Recent Publications

1. Dutta MC, Chanda K, Karim E, Vishwakarma JN (2004) A facile route to enaminones: synthesis of 3-alkyl/aralkyl/arylamino-1-arylprop-2-en-1-ones. *Ind J Chem B* 43B: 2471-74.
2. Devi AS, Dutta MC, Nongkhaw R, Vishwakarma JN (2010) KHSO₄ assisted Michael addition-elimination reactions of formylated acetophenones in water: A facile general green synthetic route to 3-(alkyl/aralkyl/aryl)amino-1-arylprop-2-en-1-ones *J Indian Chem Soc* 87: 739-742.
3. Devi AS, Helissey P, Vishwakarma JN (2011) Synthesis of novel bis-enaminones by KHSO₄ assisted facile Michael addition-elimination reaction of 3-(dimethylamino)-1-phenylprop-2-en-1-ones with diamines in water. *Green and Sustainable Chemistry* 1: 30-34.
4. Devi AS, Kaping S. Vishwakarma JN (2015) A facile environment friendly one pot two step regioselective synthetic strategy for 3,7-diarylpyrazolo[1,5-a] pyrimidines related to Zaleplon and 3,6-diarylpyrazolo[1,5-a]pyrimidine-7-amines. *Mol Divers* 19 (4): 759-771.

5. Kaping S, Kalita U, Sunn M, Singha LI, Vishwakarma JN (2016) A facile regioselective synthesis of pyrazolo [1,5-a] pyrimidine analogues in the presence of KHSO₄ in aqueous media assisted by ultrasound and their anti-inflammatory and anti-cancer activities. *Monatsh Chem* 147 (7): 1257-1276

6. Kaping S, Boiss I, Singha LI, Helissey P, Vishwakarma JN (2016) A facile regioselective synthesis of novel 3-(N-phenylcarboxamide)pyrazolo[1,5-a]pyrimidine analogues in the presence of KHSO₄ in aqueous media assisted by ultrasound and their anti-bacterial activities. *Mol Divers* 20(2): 379-390.

Biography

Jai N Vishwakarma has expertise in synthetic organic chemistry with special reference to the development of green synthetic strategies for bioactive molecular entities. He has been working in this area for over 3 decades and has developed many synthetic strategies for various classes of heterocyclic systems such as pyrazoles, pyrimidines, tetrahydropyrimidines, isoxazoles, indoles, pyrazolopyrimidines, molecular hybrids etc. .