Nanochemistry and nanomaterials
Cu doped ZnO nanocrystalline powder as a catalyst for facile and efficient one-pot multicomponent synthesis of 9-Arylacridine-1, 8-dione derivatives

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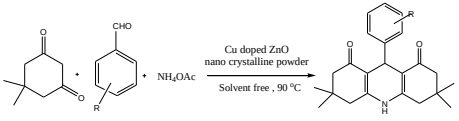
In recent years, an increasing interest has been focused on the synthesis of 1, 4-dihydropyridines owing to their significant biological activities. There are some methods for the construction of benzoacridine derivatives, such as *p*-dodecylbenezenesulfonic acid [1] and MCM-41-SO_3H [2].

ZnO is considered to be one of the most important oxide materials owing to its unique features and wide range of technologically important applications. Properties of ZnO can be tuned according to the research interest, by doping with various metal atoms to suit specific needs and applications. Substitution of copper into the ZnO lattice has shown to improve its properties such as photocatalytic activity, gas sensitivity and magnetic semiconductivity [3].

In continuation of our studies in developing efficient, simple and environmentally benign methodologies for organic synthesis, we reveal herein report the synthesis of Cu doped ZnO nanocrystalline powder and its application as a catalyst to prepare 9-Arylacridine-1,8-diones under solvent free condition (Scheme 1).



R= H, OMe, NO_2, CN,...

1. *Jin T. S., Zhang J. S., Guo T. T., Wang A. Q., Li T. S.,* One-pot clean synthesis of 1,8-dioxo-decahydroacridines catalyzed by *p*-dodecylbenezenesulfonic acid in aqueous media// Synthesis, -2004, -**12**, -P. 2001–2005.
2. *Rostamizadeh S., Amirahmadi A., Shadjou N., Amani A. M.,* MCM-41-SO_3H as a nanoreactor for the one-pot, solvent-free synthesis of 1,8-dioxo-9-aryl decahydroacridines// J. Het. Chem. -2012, -**49**, N 1, -P. 111–115.
3. *Deka S., Joy P. A.,*Synthesis and magnetic properties of Mn doped ZnO nanowires// Solid State Commun. -2007. -**142**, -P. 190-194.