

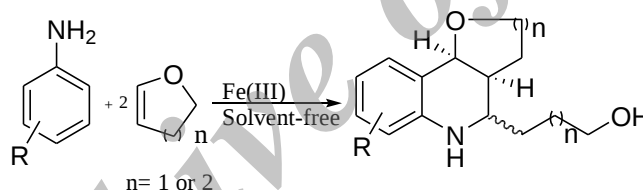
Fe(III)-catalyzed cycloaddition reaction of in situ formed imines with cyclic enol ethers

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Iron is one of the most abundant and environmentally friendly metals on the earth and several groups have reported various iron metal-catalyzed organic transformations during the past decades.¹ Iron catalysts in organic reactions have recently received much attention in view of their cheapness and environmental friendliness. Among them ferric perchlorate and ferric perchlorate adsorbed on silica gel are ranked as powerful Lewis acids for affecting various organic transformations.² Lately, ferric perchlorate adsorbed on silica gel has also been found to be effective for the rapid organic functional group transformations such as dimerization of alkynes, aromatic hydrocarbons, selective oxidation of thiols to disulfides, and transannular reaction in 1,5-cyclooctadienes on grinding using pestle and mortar in the solid state and alumina-supported iron (III) perchlorate [Fe(ClO₄)₃·Al₂O₃] have been effectively used as a Lewis acid catalyst for Nazarov cyclization/Michael addition of pyrrole derivatives.¹ On going previously our research to introduce the catalytic protocol for the synthesis of heterocyclic compounds using eco-friendly catalysts,^{3,4} catalytic synthesis of pyrano- and furanoquinolines using aryl amines, 3,4-dihydro-2H-pyran (DHP) and 2,3-dihydrofuran (DHF) is reported in the presence of Lewis acids such as Fe(ClO₄)₃·6H₂O and Fe(ClO₄)₃/SiO₂ as catalyst under mild condition without solvent (Scheme 1).



Scheme 1

References

- [1] M. Fujiwara, M. Kawatsura, S. Hayase, M. Nanjo, T. Itoh, *Adv. Synth. Catal.* **2009**, 351, 123 – 128.
- [2] M. M. Heravi, F. K. Behbahani, *J. Iran. Chem. Soc.* **2007**, 4, 375-392.
- [3] F. K. Behbahani, T. Yektanezhad, A. R. Khorrami, *Heterocycles* **2010**, 81, 2313-2321.
- [4] F. K. Behbahani, P. Ziaei, Z. Fakhroueian, N. Doragi, *Monatsh. Chem.* **2011**, 142, 901–906