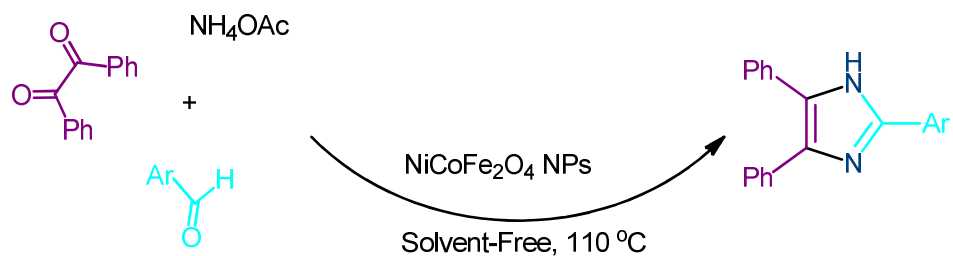


Graphical abstract

Preparation and characterization of $\text{NiCoFe}_2\text{O}_4$ nanoparticles and using as an effective catalyst for synthesis of tri-substituted imidazole derivatives under solvent-free conditions



In this research, $\text{NiCoFe}_2\text{O}_4$ nanoparticles were prepared and applied as a reactive catalyst for synthesis of tri-substituted imidazoles. The multi-component reactions of aromatic aldehydes, benzil and ammonium acetate were carried out under solvent-free and conventional heating conditions.