

We also investigated the recycling of the catalyst under solvent-free conditions using a model reaction between isatoic anhydride, 4-chlorobenzaldehyde, and 2-aminobenzothiazole. After completion of the reaction, the reaction was cooled to room temperature and the crude solid product was dissolved in hot ethanol. The solution was filtered for separation of the catalyst. The catalyst was washed twice (2×10 mL) using hot ethanol. Then it was dried at 100°C for 1 h. The recovered catalyst was reused four times with low decrease in activity (The yields were 92, 89, 88 and 85%, respectively).

4. Conclusions

H-ZSM-5 nanozeolite was synthesized by a hydrothermal method which is confirmed with FT-IR, XRD, SEM, BET and BJH techniques. This catalyst was successfully applied for the synthesis of the one-pot three-component reaction of isatoic anhydride, aromatic aldehydes and 2-amino benzothiazole or 2-amino benzimidazole to afford corresponding 2,3-dihydroquinazolin-4(1H)-ones under solvent-free conditions. Short reaction times, high yields, a simple experimental procedure in the absence of any toxic solvents and recovery of catalyst are the advantages of our protocol.

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