**Abstract**

A new perlite supported Bismuth Chloride (BiCl3) was used as an efcient heterogeneous catalyst for the synthesis of heterocyclic compounds viz., quinoxalines and dihydropyrimidinones. Fourier-transform infrared spectroscopy (FT–IR), scanning electron microscopy, energy dispersive spectra, X-ray difractometry, thermogravimetric analysis and Brunauer–Emmett–Teller surface area analytical techniques were employed to characterize the prepared catalyst. Initially, the catalytic activity of the prepared BiCl3-Perlite was tested towards synthesis of simple quinoxaline derivatives at room temperature. The efect of solvent in the preparation of quinoxaline was also examined. The formed products were confrmed by their physical (melting point) and spectral data (FT–IR, 1 H and 13C-NMR). In order to implement the activity of the BiCl3-Perlite catalyst, a multicomponent reaction was adopted for synthesis of dihydropyrimidinones under solvent free conditions in a micro oven. The use of recyclable heterogeneous solid acid catalyst makes the reaction simple with minimum chemical waste, shorter reaction time, easy workup and products in good yield.