Abstract

A new, facile, simple, low-cost, one-pot and environmentally friendly method has been described for the synthesis of thieno[2,3-\textit{b}]thiophene-3,4-diamines from the reaction of malononitrile, carbon disulfide, sodium carbonate and the chloroacetic acid derivatives (chloroacetonitrile, chloroacetone and ethyl chloroacetate) in the H$_2$O-EtOH environmentally friendly solvent system. This method does not require purification techniques such as recrystallization, extraction, chromatography, etc. The chemical structures of all compounds were characterized by $^1$H NMR, $^{13}$C NMR and FT-IR spectrometry.

\[ \text{R = CO}_2\text{Et, COMe, CN} \]

Key word:
A new method for the synthesis of thieno[2,3-\textit{b}]thiophene derivatives

Supervisors

\textbf{Dr. Hamid Beyzaei}

\textbf{Dr. Reza Aryan}

By:

\textbf{Fatemeh Tavakoli}

January 2015