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Chief Editor

Dr. Dhondiram Tukaram Sakhare

Assistant Professor & Research Guide, UG, PG & Research Centre,
Department of Chemistry, Shivaji Arts, Comm. & Science College, Kannad,
Aurangabad, Maharashtra, India

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Chapter - 2
**Green Approach to Chemo-Selective N-Boc
Protection of Amines using Catalytic amount of
Lithium Hydroxide Monohydrate under Solvent
Free Condition**

Authors

Sandip P. Gondake

Department of Chemistry, Dada Patil Mahavidyalaya, Karjat,
Ahmednagar, Maharashtra, India

Santosh R. Kshirsagar

Department of Chemistry, Dada Patil Mahavidyalaya, Karjat,
Ahmednagar, Maharashtra, India

Ashok S. Pise

Department of Chemistry, Dada Patil Mahavidyalaya, Karjat,
Ahmednagar, Maharashtra, India

Valmik S. Kapase

Department of Chemistry, Dada Patil Mahavidyalaya, Karjat,
Ahmednagar, Maharashtra, India

Sagar I. Shinde

Department of Chemistry, Dada Patil Mahavidyalaya, Karjat,
Ahmednagar, Maharashtra, India

Chapter - 2

Green Approach to Chemo-Selective N-Boc Protection of Amines using Catalytic amount of Lithium Hydroxide Monohydrate under Solvent Free Condition

Sandip P. Gondake, Santosh R. Kshirsagar, Ashok S. Pise, Valmik S. Kapase and Sagar I. Shinde

Abstract

The protecting group plays important role in synthesis of multifunctional targets. A simple rapid efficient and green method for chemo-selective N-Boc protection of amines using Lithium hydroxide as a green catalyst. In the present work amine protection in presence of di-tert-butyl carbonate under solvent free condition is carried out. An efficient green protocol for chemoselective N-Boc protection of aryl, aliphatic, aromatic, acyclic and hetero cyclic amines (1 m mol %) (1^0 , 2^0 , 3^0) were carried out with di-tert-butyl carbonate $(\text{Boc})_2\text{O}$ using Lithium hydroxide monohydrate (10 mol %) at room temperature under solvent free condition to give white solid monitored on TLC. No side reactions are observed. The present protocol were simple, rapid, efficient, shorter reaction times, high yielding, highly selective, economical and eco-friendly.

Keywords: N-Boc, lithium hydroxide monohydrate, protection of amines, solvent free, chemo-selective, green method

1. Introduction

The environmentally friendly and economically inexpensive synthetic procedures are being developed to reduce the harmful effect of organic solvent on environment is major challenge in synthetic and medicinal Chemistry. The amino functional group has important role in biological functions as well as organic synthesis. The protection and de-protection of organic functional groups play vital role in multistep organic synthesis ^[1]. There is need to protection amine function may biological active compound frequently used in synthetic and medicinal chemistry. Among them, the protection of N-tert-methoxycarbonylation has great attention due to extra stability of N-Boc group towards nucleophilic attack, alkaline condition and catalytic hydrogenation ^[2].