A protic ionic liquid catalyzed strategy for selective hydrolytic cleavage of tert-butyloxy carbonyl amine (N-Boc)

Swapan Majumdar, a* Jhinuk De, a Ankita Chakraborty, a Dipanwita Roy b and Dilip K. Maiti b

a Department of Chemistry, Tripura University, Suryamaninagar, 799 022, INDIA, E-mail: smajumdar@tripurauniv.in; Tel: +91-381-237-9070; Fax: +91-381-2374802;
b Department of Chemistry, University of Calcutta, 92, A. P. C. Road, Kolkata 700 009, INDIA

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\begin{align*}
\text{RNH}_{2} \text{Boc} & \xrightarrow{\text{H}_{2}O-\text{dioxane}(1:1)} \text{RNH}_{2} \\
\text{H} & \text{N} \text{Bu}^- \text{TFA} \\
R &= \text{aromatic, reaction temp.} = 70-72^\circ C \\
R &= \text{aliphatic, reaction temp.} = 80-82^\circ C
\end{align*}
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**General procedure:** To a stirred solution of N-Boc amine (1 mmol) in water-dioxane (1:1, 2 ml), protic ionic liquid I (1 equiv. or 10 mol%) was added and then the mixture was heated at 70-72°C or 80-82°C (depending upon the nature of substrate as indicated in Table 2-5) until the complete consumption of starting material (reaction monitored by TLC). After completion of the reaction, dioxane was removed under reduced pressure and the mixture was diluted with water (5 ml). Then the mixture was extracted with diethyl ether or ethyl acetate (3x5 ml), washed with water, dried over anhydrous Na₂SO₄ and concentrated under reduced pressure. The crude product was then passed through a short pad silica-gel to afforded parent amines. The product was characterized by IR, ¹H and ¹³C NMR spectral data and compare with authentic samples. The aqueous part containing ionic liquid was recycled. Selected ¹H and ¹³C NMR spectra were given below.
$^1$H NMR of 1e (CDCl$_3$, 300 MHz)
$^1$H NMR of 2e (CDCl$_3$, 300 MHz)
$^1$H NMR of 1g (CDCl$_3$, 300 MHz)
$^{13}$C NMR of 1g (CDCl$_3$, 75 MHz)
$^1\text{H}\text{ NMR of } 2g\ (\text{CDCl}_3,\ 300\ MHz)$
$^1$H NMR of 1i (CDCl$_3$, 300 MHz)
$^1$H NMR of 2i (CDCl$_3$, 300 MHz)
$^1$H NMR of 1j (CDCl$_3$, 300 MHz)
$^1$H NMR of 2j (DMSO-d$_6$, 300 MHz)
$^1$H NMR of 3d (CDCl$_3$, 300 MHz)
$^1$H NMR of 4d (CDCl$_3$, 300 MHz)
$^1$H NMR of 3e (CDCl$_3$, 300 MHz)
$^1$H NMR of 8c (CDCl$_3$, 300 MHz)
$^1$H NMR of 7g (CDCl$_3$, 300 MHz)
$^{13}$C NMR of 7g (CDCl$_3$, 75 MHz)
$^1$H NMR of 8g (CDCl$_3$, 300 MHz)
$^{13}$C NMR of 8g (CDCl$_3$, 300 MHz)
$^1$H NMR of 7h (CDCl$_3$, 300 MHz)
$^{13}$C NMR of 7h (CDCl$_3$, 75 MHz)
$^1$H NMR of 8h (CDCl$_3$, 300 MHz)
$^{13}$C NMR of 8h (CDCl$_3$, 75 MHz)