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SYNTHESIS OF A CHELATE RING COMPOUND CONTAINING A LITHIUM ATOM BY TAKING ADVANTAGE OF A NEW UNSYMMETRICAL β -DIKETIMINATE LIGAND BEARING BULKY SUBSTITUENTS

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SYNTHESIS OF A CHELATE RING COMPOUND CONTAINING A LITHIUM ATOM BY TAKING ADVANTAGE OF A NEW UNSYMMETRICAL β -DIKETIMINATE LIGAND BEARING BULKY SUBSTITUENTS

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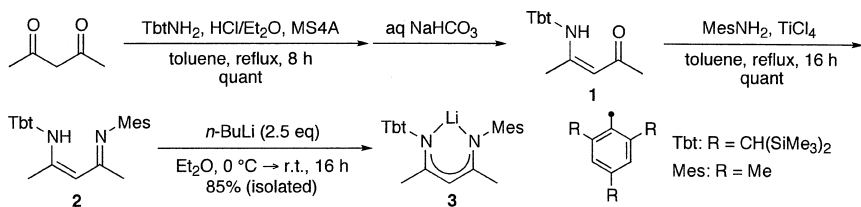
A new lithium β -diketiminate bearing bulky substituents was synthesized, and its structure was determined by NMR spectroscopy and x-ray structural analysis.

Keywords: Bulky substituent; β -diketiminate; lithium

In recent years, there have been much interests in the chemistry of β -diketiminato metal complexes.¹ Particularly, β -diketiminate ligands having bulky substituents at the nitrogen atoms have been applied successfully to the synthesis of low-coordinate complexes of heavier main group elements and transition metals. We recently have reported on the synthesis of transition metal complexes having a novel ring structure, platinum dichalcogenido complexes, $[\text{PtE}_2\{\text{P}(\text{Tbt})\text{Me}_2\}_2]$ ($\text{E} = \text{S}, \text{Se}$), by taking advantage of 2,4,6-tris[bis(trimethyl-silyl)methyl]phenyl (Tbt) group.² In this article, we present the synthesis of a new β -diketiminate ligand bearing a Tbt group and its application to the synthesis of a chelate ring compound containing a lithium atom.

Refluxing of a toluene solution of TbtNH_2 , acetylacetone (10 eq), and $\text{HCl/Et}_2\text{O}$ (0.5 eq) in the presence of molecular sieves resulted in the exclusive formation of **1** via mono-condensation reaction. Further condensation with MesNH_2 in the presence of TiCl_4 (0.6 eq) gave an unsymmetrically substituted enaminoimine **2** in 85% yield. Compound **2** was treated with 2.5 molar amount of *n*-butyllithium in ether to afford the corresponding chelate ring compound **3** containing a lithium atom as moisture sensitive crystals. The formation of **3** was confirmed by the

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^1H , ^{13}C , and ^7Li NMR spectra. The x-ray structural analysis of **3** revealed that **3** has a conjugated six-membered ring system containing a solvent-free lithium atom. To the best of our knowledge, this is the first structural analysis of a solvent-free, monomeric β -diketiminato complex of lithium. The syntheses of chelate ring complexes of transition metals are in progress.

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