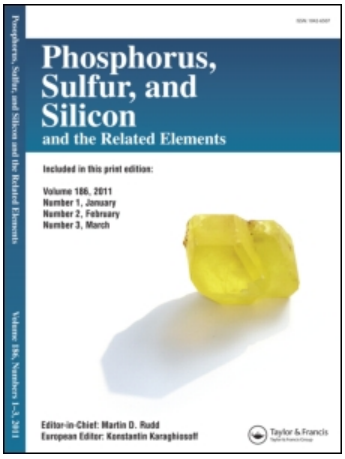

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SYNTHESIS OF A CHELATE RING COMPOUND CONTAINING A LITHIUM ATOM BY TAKING ADVANTAGE OF A NEW UNSYMMETRICAL β-DIKETIMINATE LIGAND BEARING BULKY SUBSTITUENTS

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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, $[PtE_2\{P(Tbt)Me_2\}_2]$ (E = S, 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 HCl/Et_2O (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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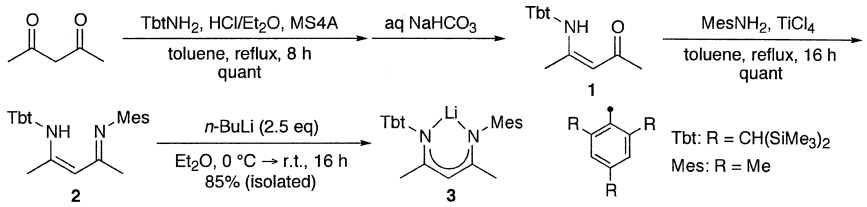

^{1}H, ^{13}C, and ^{7}Li NMR spectra. The x-ray structural analysis of **3** revealed that **3** has a conjugated six-membered ring system containing a solvent-free lithium atom. To the best of our knowledge, this is the first structural analysis of a solvent-free, monomeric β-diketiminato complex of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

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