The Reduction of Pyridine to 1,4-Dihydropyridine by Lithiumtetrahydroborate in the Presence of Water

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In the presence of water lithium tetrahydroborate is capable of reducing pyridine to 1,4-dihydropyridine. The product, lithiumtetrakis(pyridine) tetrakis(1,4-hydropyridyl)borate, was isolated and characterized by NMR and IR spectroscopy and single crystal X-ray diffraction. $[Li(py)_4][B(pyH)_4]\cdot 2$(1,4-dioxane) crystallized in space group $P4_2/n$, $Z = 2$. Similarly, $NaBH_4$ can also reduce pyridine in the presence of water and equivalent amounts of LiCl or $ZnCl_2$.

Key words: Reduction of Pyridine, Tetrakis(hydropyridino)borate, X-Ray Structure