

# The Synthesis of Copper(II) Salicylaldiminato Complexes and their Catalytic Activity in the Hydroxylation of Phenol

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*Z. Naturforsch.* **2007**, 62b, 331 – 338; received November 13, 2006

*Dedicated to Prof. Helgard G. Raubenheimer on the occasion of his 65<sup>th</sup> birthday*

The synthesis of copper(II) salicylaldiminato complexes and their application in the catalytic hydroxylation of phenol is reported. Tetracoordinated copper complexes ( $\text{Cu}(\text{L}^n)_2$ ) were obtained by reacting the *N*-phenylsalicylaldimine ligands ( $\text{HL}^1 - \text{HL}^7$ ) with copper acetate in a 2 : 1 mole ratio. The reaction of *N*-(2,6-diisopropyl)phenyl-3,5-di-*tert*-butylsalicylaldimine ( $\text{HL}^7$ ) with copper acetate in a 1 : 1 mole ratio afforded a dinuclear complex, which was not obtained with the other ligand systems. All complexes were characterized using FT-IR and elemental analysis. X-Ray crystal structures of complexes **2**, **5** and **8** have also been obtained. The catalytic activity of these complexes was evaluated in the hydroxylation of phenol using oxygen and hydrogen peroxide as co-oxidants in aqueous media in the pH range 3–6. All complexes studied were found to be active for the hydroxylation process over the pH range studied with higher selectivity for catechol formation.

**Key words:** Salicylaldimine, Tetracoordinated Copper(II) Complexes, Hydroxylation, Phenol