

Synthesis, structural analysis and evaluation of the catalytic activity of a non-symmetric *N*-(salicylidene)diethylenetriamine complex of copper(II).

Autorzy

Hassan Hosseini-Monfared

Sohaila Alavi

Miłosz Siczek

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Streszczenie

A new copper(II) complex of a non-symmetric Schiff base, $[\text{Cu}^{\text{II}}(\text{saldien})(\text{H}_2\text{O})]^+$ (**1**), has been synthesized and characterized by elemental analysis and several other spectroscopic methods (Hsaldien = *N*-(salicylidene)diethylenetriamine). The crystal structure of **1** has also been determined by X-ray crystallography. The geometry of the complex cation in **1** was found to be distorted square pyramidal with the mononegative Schiff base coordinating to the copper in a tetradentate mode via the *O,N,N'*, and *N''*-donor atoms. The remaining coordination site was occupied by the O atom of a H_2O molecule in the axial position. The catalytic potential of **1** was tested in the oxidation reactions of cyclooctene and cyclohexene with aqueous 30% $\text{H}_2\text{O}_2/\text{NaHCO}_3$ in acetonitrile. These reactions proceeded smoothly to give the corresponding epoxides with selectivity levels greater than 99%. This catalytic system also showed high levels of activity and selectivity towards the oxidation of cyclohexane (i.e., cyclohexanol 37% and cyclohexanone 54%) in comparison with most of the other Cu-based systems reported in the literature.

Słowa kluczowe

crystal structure, Copper(ii)complex, Non-symmetric Schiff base, catalyst, Hydrogen peroxide

Adres publiczny

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