

BOOK of ABSTRACTS

25th Congress of Chemists and Technologists of Macedonia



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Сојуз на хемичарите и технолозите на Македонија

Society of Chemists and Technologists of Macedonia

**25th Congress of SCTM
with international participation**

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**UNEXPECTED FORMATION OF
cis-[(DMSO)₂ClCu^{II}(μ-Cl)₂Cu^{II}Cl(DMSO)₂] IN THE REACTION OF *trans*-
[CuCl₂(DMSO)₂] WITH THE THIOHYDANTOIN TYPE LIGAND**

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In the reaction of well-known *trans*-[CuCl₂(DMSO)₂] complex with the polydentate thiohydantoin type ligand, 3-[(2-hydroxybenzylidene)amino]-2-thioxoimidazolidin-4-one [1], unexpected *cis*-[(DMSO)₂ClCu^{II}(μ-Cl)₂Cu^{II}Cl(DMSO)₂] complex was formed predominantly as the final stable product, which structure was confirmed by single crystal X-ray crystallography (Fig. 1). Till now, only one procedure was reported, based on a specific preparation via decomposition of a tetranuclear [Cu₄Cl₈(DMSO)₈(hmta)] complex [2].

Starting ligand of thiohydantoin type is mostly recovered, while the minor amount is coordinated to Cu(II) ion. Coordination of the ligand is confirmed by different spectroscopic methods [3], but for the final elucidation of the structure of this minor product and the coordination mode the X-ray analysis is needed.

As the *cis*-isomer could not be obtained by direct synthesis and in our case is not obtained by decomposition of another complex, our investigation is directed to resolving the mechanism of this reaction and the role of the presence of the starting ligand in the isomerization of *trans*-complex to *cis*-form by either experimental or theoretical methods.



Figure 1. *cis*-[(DMSO)₂ClCu^{II}(μ-Cl)₂Cu^{II}Cl(DMSO)₂] complex

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