5th NATIONAL INORGANIC CHEMISTRY CONGRESS

ABSTRACT BOOK

APRIL 22-25, 2015

V. ULUSAL ANORGANİK KİMYA KONGRESİ

ÖZET KİTABI

22-25 NİSAN 2015

Publication No: 41

MERSIN UNIVERSITY PUBLICATIONS

MERSİN ÜNİVERSİTESİ YAYINLARI

Yayın No: 41

MERSIN UNIVERSITY MERSİN ÜNİVERSİTESİ

5th NATIONAL INORGANIC CHEMISTRY CONGRESS

ABSTRACT BOOK

APRIL 22-25, 2015

MERSIN UNIVERSITY PRESS

5th NATIONAL INORGANIC CHEMISTRY CONGRESS
ABSTRACT BOOK
APRIL 22-25, 2015
MERSİN - TURKEY

MERSIN UNIVERSITY PUBLICATIONS NO: 41

V. ULUSAL ANORGANİK KİMYA KONGRESİ

ÖZET KİTABI

22-25 NİSAN 2015

MERSİN ÜNİVERSİTESİ YAYINEVİ

V. ULUSAL ANORGANİK KİMYA KONGRESİ
ÖZET KİTABI
22-25 NİSAN 2015
MERSİN - TÜRKİYE

MERSİN ÜNİVERSİTESİ YAYINLARI NO: 41

ISBN NO: 978 – 975 – 6900 – 47 – 5

9 789756 900475 >

P-261

Crystal Structure and Cyclic Voltammetric Studies on the Metal Complexes of *N*-(dimethylcarbamothioyl)-4-fluorobenzamide Ligand

GÜN BİNZET [1], ERSAN TURUNÇ [2], ULRİCH FLÖRKE [3], NEVZAT KÜLCÜ [4], HAKAN ARSLAN [4]

[1] DEPARTMENT OF ELEMENTARY SCIENCE EDUCATION, FACULTY OF EDUCATION, MERSIN UNIVERSITY, YENISEHIR CAMPUS, 33160, MERSIN, TURKEY

[2] ADVANCED TECHNOLOGY RESEARCH AND APPLICATION CENTER, MERSIN UNIVERSITY, CIFTLIKKOY CAMPUS, MERSIN, 33343, TURKEY

[3] DEPARTMENT OF CHEMISTRY, UNIVERSITY OF PADEBORN, PADEBORN, 33098, GERMANY

[4] DEPARTMENT OF CHEMISTRY, FACULTY OF ARTS AND SCIENCE, MERSIN UNIVERSITY, CIFTLIKKOY CAMPUS, MERSIN, 33343, TURKEY

Copper(II) and nickel(II) complexes of *N*-(dimethylcarbamothioyl)-4-fluorobenzamide ligand have been synthesized according to given method in the literature [1,2]. Their structures were determined by FT-IR and ^{1}H NMR spectroscopy and electrochemical behavior of Ni(II) and Cu(II) complexes were studied using cyclic voltammetry technique. According to the obtained results, nickel (II) complex hasn't showed electroactive property while copper (II) complex has shown electroactive properties. Cyclic voltammogram of $Cu(L^1)_2$ in dichlormethane is shown in Figure 1. Crystal and molecular structure of copper(II) and nickel(II) complex have been determined from single crystal X-ray diffraction data. Two S and two O atoms form the coordination environment of the nickel or copper atoms, resulting in a slightly distorted square-planar coordination. The sulfur atoms are in a *cis* configuration. The bond length of the thiocarbonyl and carbonyl bonds are longer than the average for C=S and C=O, while the C-N bonds in the complex ring are all shorter than the average for C-N single bonds. These results indicate C–O, C–S and C–N bond lengths of the complexes suggest considerable electronic delocalization in the chelate ring. All the other bond lengths and angles are within experimental error limits. The structure of the comlexes were found to be consistent with similar compounds.

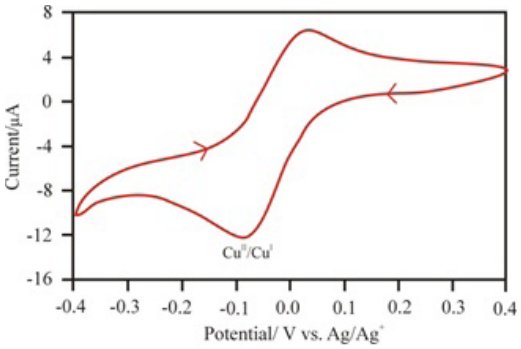

Figure 1. Cyclic voltammogram of $Cu(L^1)_2$ in dichlormethane.

Keywords: Thioureas, Benzoylthioureas, Metal complexes, X-ray single crystal diffraction, Electrochemical behavior.

References

1. Binzet, G., "Synthesis and properties of benzoylthiourea derivatives and metal complexes", Ph.D Thesis, Mersin University Mersin, 2009.
2. Binzet, G., Kavak, G., Külcü, N., Ozbey, S., Florke, U., Arslan, H., "Synthesis and characterization of novel thiourea derivatives and their nickel and copper complexes", J. Chem., 1-9, ID:536562, 2013.