



5<sup>th</sup> NATIONAL  
**INORGANIC  
CHEMISTRY  
CONGRESS**

ABSTRACT BOOK  
APRIL 22-25, 2015

V. ULUSAL  
**ANORGANİK  
KİMYA  
KONGRESİ**

ÖZET KİTABI  
22-25 NİSAN 2015

Publication No: 41

MERSİN  
UNIVERSITY  
PUBLICATIONS

MERSİN  
ÜNİVERSİTESİ  
YAYINLARI

Yayın No: 41



MERSİN UNIVERSITY MERSİN ÜNİVERSİTESİ

5<sup>th</sup> NATIONAL  
**INORGANIC  
CHEMISTRY  
CONGRESS**

ABSTRACT BOOK  
APRIL 22-25, 2015

**MERSIN UNIVERSITY PRESS**

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

**MERSIN UNIVERSITY PUBLICATIONS NO: 41**

**CHAIR OF ORGANIZING COMITEE**

Prof.Dr. Nevzat KÜLCÜ (Chairman)  
Prof.Dr. Hakan ARSLAN (Vice-Chairman)  
Asist.Prof.Dr. Göktürk AVŞAR (Coordinator)

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**

**ORGANİZASYON KOMİTESİ BAŞKANLIĞI**

Prof.Dr. Nevzat KÜLCÜ (Kongre Başkanı)  
Prof.Dr. Hakan ARSLAN (Kongre Başkan Yardımcısı)  
Yrd.Doç.Dr. Göktürk AVŞAR (Koordinatör)

ISBN NO: 978 – 975 – 6900 – 47 – 5



9 789756 900475 >

P-230

## Synthesis, Characterization and Crystal Structure of Palladium Complex of 4-Bromo-*N*-(dibutylcarbamothioyl)benzamide

ÜMMÜHAN SOLMAZ<sup>1</sup>, İLKAY GÜMÜŞ<sup>1</sup>, GÜN BİNZET<sup>2</sup>, ÖMER ÇELİK<sup>3</sup>, HAKAN ARSLAN<sup>1</sup>

<sup>1</sup> DEPARTMENT OF CHEMISTRY, FACULTY OF ARTS AND SCIENCE, MERSIN UNIVERSITY, CİFTLİKKOY CAMPUS, MERSIN, 33343, TURKEY

<sup>2</sup> DEPARTMENT OF ELEMENTARY SCIENCE EDUCATION, FACULTY OF EDUCATION, MERSIN UNIVERSITY, YENİSEHIR CAMPUS, 33160, MERSIN, TURKEY

<sup>3</sup> SCIENCE AND TECNOLOGY APPLIED AND RESEARCH CENTER, DICLE UNIVERSITY, SUR, DIYARBAKIR, 21280, TURKEY

*Trans*-dichloro-*bis*[4-bromo-*N*-(dibutylcarbamothioyl)benzamide-κS]palladium(II), (*trans*-[PdCl<sub>2</sub>(HL-S)<sub>2</sub>]), was formed from the reaction between PdCl<sub>2</sub> and 4-chloro-*N*-(dibutylcarbamothioyl)benzamide in acetonitrile. 4-Bromo-*N*-(dibutylcarbamothioyl)benzamide and its palladium complex have been characterized by elemental analyses, FT-IR and NMR techniques [1]. The molecular structure of the complex has been also confirmed by X-ray single crystal diffraction study (Figure 1). Crystal data of the title compound, C<sub>32</sub>H<sub>46</sub>Br<sub>2</sub>Cl<sub>2</sub>N<sub>4</sub>O<sub>2</sub>PdS<sub>2</sub> (M = 920.00 g/mol); Monoclinic, Space group C2/c (no. 15), *a* = 12.3112(6) Å, *b* = 18.7616(8) Å, *c* = 16.8732(12) Å, β = 97.911(2)°, *V* = 3860.2(4) Å<sup>3</sup>, *Z* = 8, *D*<sub>calc</sub> = 1.5829 g/cm<sup>3</sup>, 29762 reflections measured (3.98° ≤ 2θ ≤ 52.74°), 3948 unique (*R*<sub>int</sub> = 0.0578, *R*<sub>sigma</sub> = 0.0496) which were used in all calculations. The final *R*<sub>1</sub> was 0.0403 (*I* ≥ 2σ(*I*)) and *wR*<sub>2</sub> was 0.1111 (All data). 4-Bromo-*N*-(dibutylcarbamothioyl)benzamide ligand binds to palladium metal as bidentate from two sulphur atoms. Coordination geometry around the palladium atom is described as a distorted square planar. The dihedral angle between the S1-Pd-Cl1 and S11-Pd-Cl1 planes of 7.81° confirms distortion from square planar towards tetrahedral.

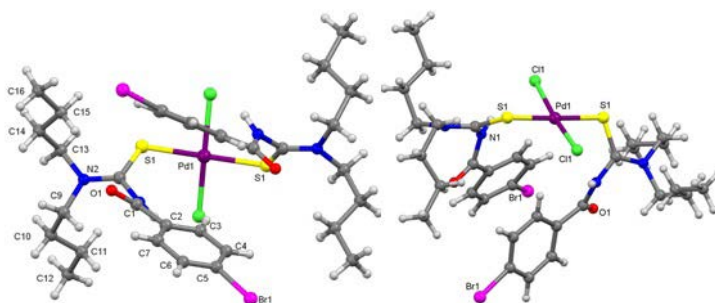


Figure 1. Molecular structure of title compound.

**Acknowledgement:** This study was supported by the Research Fund of Mersin University in Turkey with Project Number: BAP-FBE KB (ÜK) 2013-1 YL.

**Keywords :** Palladium complex, Benzoyl thiourea, X-ray single crystal diffraction, Synthesis.

### Reference

1. Solmaz, U. "Synthesis and characterization of palladium complexes of thiourea derivatives", MSc. Thesis, Mersin University, Mersin, Turkey, 2014.