

Accepted Manuscript

Coordination environment of new Co(II), Ni(II) and Cu(II) complexes with 4-bromophenoxyacetic acid: Structural, spectroscopic and theoretical studies

Aleksandra Drzewiecka-Antonik, Wiesława Ferenc, Paweł Rejmak, Anna Wolska, Marcin T. Klepka, Beata Cristóvão, Barbara Mirosław, Jan Sarzyński, Dariusz Osypiuk

PII: S0277-5387(17)30333-9
DOI: <http://dx.doi.org/10.1016/j.poly.2017.05.005>
Reference: POLY 12624

To appear in: *Polyhedron*

Received Date: 22 March 2017
Revised Date: 3 May 2017
Accepted Date: 3 May 2017

Please cite this article as: A. Drzewiecka-Antonik, W. Ferenc, P. Rejmak, A. Wolska, M.T. Klepka, B. Cristóvão, B. Mirosław, J. Sarzyński, D. Osypiuk, Coordination environment of new Co(II), Ni(II) and Cu(II) complexes with 4-bromophenoxyacetic acid: Structural, spectroscopic and theoretical studies, *Polyhedron* (2017), doi: <http://dx.doi.org/10.1016/j.poly.2017.05.005>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



**Coordination environment of new Co(II), Ni(II) and Cu(II)
complexes with 4-bromophenoxyacetic acid: Structural,
spectroscopic and theoretical studies**

Aleksandra Drzewiecka – Antonik^a, Wiesława Ferenc^b, Paweł Rejmak^a, Anna Wolska^a,
Marcin T. Klepka^a, Beata Cristóvão^b, Barbara Mirosław^b, Jan Sarzyński^c, Dariusz Osypiuk^b

^a*Institute of Physics, Polish Academy of Sciences, 02-668 Warsaw, Poland,*

^b*Faculty of Chemistry, Maria Curie-Skłodowska University, 20-031 Lublin, Poland,*

^c*Institute of Physics, Maria Curie-Skłodowska University, 20-031 Lublin, Poland.*

Abstract:

We report the synthesis of new Co(II), Ni(II) and Cu(II) complexes with 4-bromophenoxyacetic acid. We characterize these compounds structurally using various laboratory (XRF, IR, UV-VIS) and synchrotron (EXAFS, XANES) spectroscopic methods, magnetic measurements and DFT calculations. We found that in the powder form of complexes Co(II) and Ni(II) cations are coordinated by two monodentate carboxylate ligands and the first coordination sphere is completed by water molecules that form an octahedron. The coordination polyhedron of Cu(II) exhibits a distorted tetragonal-pyramidal geometry with two ligands coordinating in bidentate and monodentate fashion via carboxylate O atoms and two water molecules.

The X-ray single crystal structure analysis performed for Cu(II) complex after its recrystallization from *N,N*-dimethylformamide (DMF) solution revealed the formation of dinuclear complex. In crystals, the carboxylate O atoms occupy the bases of two tetragonal pyramids formed around two Cu(II) ions with the DMF molecules in the apical positions.

Download English Version:

<https://daneshyari.com/en/article/5154122>

Download Persian Version:

<https://daneshyari.com/article/5154122>

[Daneshyari.com](https://daneshyari.com)