

Synthesis, spectral and magnetic properties and crystal structures of copper(II) pyridinecarboxylates as potential antimicrobial agents.

Autorzy

J. Jašková
D. Mikloš
Maria Korabik
V. Jorik
Peter Segl'a
B. Kaliňáková
Daniela Hudecová
Jozef Švorec
A. Fischer
Jerzy Mroziński
Tadeusz Lis
Milan Melnik

Rok wydania

2007

Czasopismo

Inorganica Chimica Acta

Numer woluminu

360

Strony

2711-2720

DOI

10.1016/j.ica.2007.01.022

Kolekcja

Naukowa

Streszczenie

Synthesis and characterization of six new complexes $[\text{Cu}\{2,6-(\text{MeO})_2\text{nic}\}_2(\text{H}_2\text{O})]_2$ (1), $[\text{Cu}\{2,6-(\text{MeO})_2\text{nic}\}_2(\text{H}_2\text{O})]_2 \cdot 3\text{DMF}$ (2), where 2,6-(MeO)₂ nic is 2,6-dimethoxynicotinate and DMF is N,N-dimethylformamide, $[\text{Cu}(3\text{-pyacr})_2(\text{H}_2\text{O})_2]_n$ (3), where 3-pyacr is trans-3-(3-pyridyl)acrylate, $[\text{Cu}(\text{en})_2(\text{H}_2\text{O})_2]\text{X}_2$, where X is 2,6-(MeO)₂ nic (4) or 3-pyacr (5) and en is ethylenediamine, and $[\text{Cu}(3\text{-pyacr})_2(\text{dien})(\mu\text{-H}_2\text{O})_{0.5}]_2 \cdot 7\text{H}_2\text{O}$ (6), where dien is diethylenetriamine are reported. The characterizations were based on elemental analysis, infrared, electronic and EPR spectra, and magnetic measurements over a temperature range of 1.8–300K. Crystal structures of complexes 2, 4 and 6 have been determined by X-ray single crystal structure analysis. The available evidence supports dimeric structure of the acetate type for 1 and 2. Crystal structure of polymeric complex 3 has been determined from X-ray powder diffraction data. The 3-pyacr anions in pairs form bridges between two octahedrally surrounded copper(II) atoms in such a way that one 3-pyacr is coordinated to the first Cu^{II} by an oxygen atom of its carboxyl group and to the second Cu^{II} by the nitrogen atom of its pyridine ring, while the other is coordinated to the same two Cu^{II} atoms in a similar way, but the other way round. Environment about the copper(II) atom for 4 and 5 is a square bipyramid (4+2). In complex 6 both Cu^{II} central atoms are bridged only by an axial water molecule forming a dimeric structure with the considerably long separation of Cu^{II} atoms of 5.194 Å and the angle Cu1–O3–Cu1a of 150.79°. Moreover, results of the quantitative determination of antimicrobial activity of the complexes as well as above organic ligands alone are discussed.

Język

Angielski

Typ publikacji

Artykuł

Słowa kluczowe

crystal structure, chelating ligands, antimicrobial agent, molecule, 6-Dimethoxynicotinate, Copper(II) complexes, trans-3-(3-Pyridyl)acrylate

Adres publiczny

[https://doi.org/ 10.1016/j.ica.2007.01.022](https://doi.org/10.1016/j.ica.2007.01.022)

Strona internetowa wydawcy

<http://www.elsevier.com>

Plik został wygenerowany dnia 2026-08-28 22:41:16

Adres w repozytorium <https://old.chem.uni.wroc.pl/pl/repozytorium/7x02Qt5>.