

Crystal structures, spectral and magnetic properties of cobalt(II) pyridinecarboxylates: a novel polymeric chain in $\{[2,6-(\text{MeO})_2\text{nic}]_2(\text{H}_2\text{O})_2\text{Co}(\mu\text{-H}_2\text{O})\text{Co}(\text{H}_2\text{O})_4(\mu\text{-H}_2\text{O})\}\{2,6-(\text{MeO})_2\text{nic}\}_2 \cdot 6\text{H}_2\text{O}\}_n$.

Autorzy

D. Mikloš
J. Jašková
Peter Segl'a
Maria Korabik
Jerzy Mroziński
R. Sillanpää
M. Mikuriya
Milan Melnik
Rok wydania

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Streszczenie

Synthesis and characterization of two new cobalt(II) complexes, namely monomeric $[\text{Co}(2\text{-MeSnic})_2(\text{H}_2\text{O})_4] \cdot 4\text{H}_2\text{O}$ (2-MeSnic is 2-methylthionicotinate) and polymeric $\{[2,6-(\text{MeO})_2\text{nic}]_2(\text{H}_2\text{O})_2\text{Co}(\mu\text{-H}_2\text{O})\text{Co}(\text{H}_2\text{O})_4(\mu\text{-H}_2\text{O})\}\{2,6-(\text{MeO})_2\text{nic}\}_2 \cdot 6\text{H}_2\text{O}\}_n$ (2,6-(MeO)₂nic is 2,6-dimethoxynicotinate), are reported. The characterizations were based on elemental analysis, infrared and electronic spectra as well as magnetic measurements. Crystal structures of both complexes have been determined. In both of them – $[\text{Co}(2\text{-MeSnic})_2(\text{H}_2\text{O})_4] \cdot 4\text{H}_2\text{O}$ and $\{[2,6-(\text{MeO})_2\text{nic}]_2(\text{H}_2\text{O})_2\text{Co}(\mu\text{-H}_2\text{O})\text{Co}(\text{H}_2\text{O})_4(\mu\text{-H}_2\text{O})\}\{2,6-(\text{MeO})_2\text{nic}\}_2 \cdot 6\text{H}_2\text{O}\}_n$ – the Co^{II} atom is six-coordinated. In the 2nd complex, there are two nonequivalent Co^{II} central atoms, involved in forming a linear polymeric chain with alternating cationic and neutral part. One of them is octahedrally coordinated by a carboxyl oxygen atom of 2,6-(MeO)₂nic, two water molecules and the corresponding centrosymmetrically located atoms. The second Co^{II} atom is also octahedrally coordinated by six water molecules. Both coordination polyhedra are bridged by a water molecule. The charge of the cationic part is compensated for by two independent anionic 2,6-(MeO)₂nic units. The structure is held together by a complicated system of hydrogen bonds.

Słowa kluczowe

Crystal structure, Pyridinecarboxylate complexes, Cobalt(II) complexes, Polymeric complexes, Spectral and magnetic properties

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