

Co(II) coordination polymers derived from α,α -disubstituted analogues of zoledronic acid and 4,4'-bipyridine : synthesis, structures and characterization.

Autorzy

Tomasz Rojek
Waldemar Goldman
Katarzyna Ślepokura
Ewa Matczak-Jon

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Streszczenie

Two isomorphous Co(II) coordination polymers were hydrothermally prepared using analogues of zoledronic acid functionalized at C α carbon by a cyclobutane ring (H4cbtZol) or methyl groups (H4dmtZol), 4,4'-bipyridine (4,4'-bpy) and cobalt(II) acetate. The resulting crystalline materials, Co₃(HcbtZol)₂(4,4'-bpy)(H₂O)₄·10H₂O (1) and [Co₃(HdmtZol)₂(4,4'-bpy)(H₂O)₄]·0.2NaOH·9.8H₂O (2), were analysed by means of single-crystal X-ray diffraction, IR spectroscopy and thermal techniques.

Both **1** and **2** feature similar *zig-zag* [Co₃(HcbtZol/HdmtZol)₂(H₂O)₄] chains with crystallographically distinct Co1 and Co2 in slightly distorted octahedral geometries, assembled into 2D coordination layers by 4,4'-bpy. In both compounds, 3D supramolecular architecture is sustained by hydrogen bonds involving water of crystallization filling the cavities inside the network. Furthermore, in **2**, an additional support provide Na⁺ ions linked by phosphonate O atoms and molecules of coordinated and crystallization water. The vibrational spectra of both compounds are in good agreement with crystal data.

Similarities in chain architectures of **1** and **2** and previously reported 1D M₃(HL)₂(H₂O)₆·6H₂O (M = Co, Ni, HL³⁻ = HdmtZol³⁻, HcbtZol³⁻) coordination polymers are discussed and differences in their thermal behavior explained in term of different 3D architectures.

Słowa kluczowe

Zoledronic acid, Coordination polymer, transition metal, X-ray crystallography, thermal stability

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