

New solid state Ni(II)-famotidine square-planar complex: powder diffraction and spectroscopic studies.

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Recent potentiometric studies have claimed that Ni(II) forms three pH-dependent complexes with famotidine. We isolated two of them from the solution; namely the paramagnetic complex NiL with octahedral geometry and the diamagnetic complex NiH₂L with square-planar geometry. The latter compound constitutes the subject of this work. The crystal structure of nickel (II) famotidine complex NiC₈N₇O₂S₃H₁₃ discussed here, determined with the powder diffraction method, has shown that it belongs to a *Pbcn* space group (60) with *a*, *b*, *c*=24.328(4), 14.747(2), 7.786(1), *V*=2793.6(5) Å³. *R_F* and *R_{wp}* are 16.1% and 15.5%, respectively. Additionally, the UV–VIS, FT-FIR and Raman spectroscopic methods were employed to discuss and support the structure of the NiH₂L complex suggested by X-ray data. The structure presented in this work is the second example of the complex of a famotidine ligand with a transition metal ion in the solid state. The other one, reported from a single crystal X-ray structure of famotidine complex with Cu(II), is quite different.

Słowa kluczowe

Ni(II)-famotidine complex, Powder diffraction method, Rietveld method, UV–visible, FT-FIR, Raman spectroscopy

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