LETTERS
TO THE EDITOR

Binuclear Nickel(II) Acetate

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It is known that the structural motive containing two metal ions connected by four bridging carboxyl groups often plays an important role in metalloenzyme catalysis [1, 2]. At present a great number of binuclear carboxyl-bridging complexes of d elements of the “Chinese lantern” type [3] have been synthesized and characterized, however the number of such nickel compounds is comparatively small, in spite of the fact that nickel is assigned to ultramicrobiometals necessary for organism [4, 5].

In the present work we present the synthesis and the XRD of the new symmetric complex $[\text{Ni}_2(\mu\text{-O}_2\text{CCH}_3)_4(\text{O-DMSO})_2]$, nickel(II) acetate of the “Chinese lantern” type with two dimethyl sulfoxide (DMSO) molecules coordinated in terminal positions via oxygen atoms.

Tetra μ -(*O,O*-acetato)di(*O*-dimethylsulfoxido)dinickel(II, II) (I). A cake of metal nickel with barium peroxide (1:5 by weight) was dissolved with boiling in the system $\text{CH}_3\text{COOH-H}_2\text{O}$ (2:1 by volume). Barium ions were precipitated by a sulfuric acid solution, and a green solution after filtering was evaporated on a rotor evaporator up to obtaining a solid phase. The crystallization of resulting nickel acetate from a mixture of methyl and ethyl alcohols with acetone and DMSO gives blue-green rhombic crystals of complex I. Yield ~80% (counting on the metal). The complex is readily soluble in alcohol, methanol, acetonitrile, and water. IR spectrum (cm^{-1}): 3501 m, 3471 mp, 3377 m, 3270 m, 2994 w, 2941 w, 1600 s, 1445 s, 1421 s, 1355

w, 1340 w, 1322 w, 1053 w, 1033 w, 690 m, 628 m, 534 w. Electronic spectrum (aqueous solution) λ_{max} (ε), nm: 773 (44). Found, %: C 28.5; H 4.2; S 12.5. $\text{C}_{12}\text{H}_{24}\text{Ni}_2\text{O}_{10}\text{S}_2$. Calculated, %: C 28.27; H 4.74; S 12.58.

According to XRD, complex I crystallizes in the triclinic system with the *P*-1 space group. The main bond lengths: Ni–Ni 2.610, Ni–O_{av}($\mu\text{-O}_2\text{CCH}_3$) 1.963, Ni–O_{av} (O-DMSO) 2.155 Å. Unit cell parameters: *a* 8.243, *b* 9.279, *c* 14.248 Å, 80.99, 89.38, and 88.39, *V* 1075.9 Å³, *Z* 2, *R* factors (all reflections): *R* 0.0380, *R_w* 0.0910.

Crystallographic data for complex I are deposited in the Cambridge bank of structural data (CCDC 773804).

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