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LANTHANIDE COORDINATION COMPOUNDS WITH MONODENTATE COORDINATED *β*-DIKETONE HETEROANALOGUE - (2,2,2-TRICHLORO-N-(DIPIPERIDIN-1-YL-PHOSPHORYL)ACETAMIDE: SYNTHESIS AND SPECTRAL INVESTIGATIONS

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Abstract. 14 new mononuclear six-coordinate lanthanide coordination compounds of general formula $[Ln(HL)_3Cl_3]$ (Ln = La-Nd, Sm-Lu; HL = (2,2,2-trichloro-N-(dipiperidin-1-yl-phosphoryl)acetamide $CCl_3C(O)N(H)P(O)[N(CH_2)_5]_2$, carbacylamidophosphate (CAPh) type ligand) have been synthesized from non-aqueous solutions. The complexes have been characterized by elemental analysis, FTIR, ^{1}H- and ^{31}P-NMR, and UV-Vis spectroscopy. The structure of $[Sm(HL)_3Cl_3]$ (**1**) has been further confirmed by single crystal X-ray diffraction analysis. Crystal data: trigonal, *R3*, with a = 24.098 Å, c = 18.025 Å, V = 9065.0 Å^3, Z = 6, R_1 = 0.0327, and wR_2 = 0.0404. The crystal structure was solved as two crystallographically independent fragments Sm(HL)Cl: A and B that exist in the crystalline lattice due to the differences in some geometrical parameters.

Keywords: lanthanide, carbacylamidophosphate, phosphoryl ligand, six-coordinate lanthanide complex, electronic spectrum.

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