

SYNTHESIS AND CHARACTERISATION OF NEW {Fe₂CrO} HETEROTRINUCLEAR IRON-CHROMIUM CLUSTERS

Viorina Gorinchoy^{id a}, Olesia Cuzan^{id a*}, Silvia Melnic^{id a,b}, Oleg Petuhov^{id a}, Sergiu Shova^{id a}

^aInstitute of Chemistry, 3, Academiei str., Chisinau MD 2028, Republic of Moldova

^bState University of Medicine and Pharmacy "Nicolae Testemițanu", 165, Stefan cel Mare si Sfânt, blvd.,
Chisinau MD 2004, Republic of Moldova

*e-mail: olesea_cuzan@yahoo.com, olesea.cuzan@ichem.md

Abstract. Two new μ_3 -oxo trinuclear heterometallic Fe^{III}Cr^{III} complexes with furan-2-carboxylic and salicylic acids with the composition: [Fe₂CrO(C₄H₃OCOO)₆(CH₃OH)₃]NO₃·0.5CH₃OH and [Fe₂CrO(C₆H₄(OH)COO)₇(CH₃OH)₂]·2DMA were synthesized starting from iron(III) and chromium(III) salts mixture. The complexes structures were confirmed by elemental analysis, IR, Mössbauer spectroscopies, and X-ray analysis. The atomic absorption spectroscopy confirmed that the iron: chromium ratio is 2:1. The thermal properties of both heteronuclear complexes have been investigated in oxidizing and inert atmospheres revealing the stability of the trinuclear core up to 170 and 220°C, respectively.

Keywords: heteronuclear μ_3 -oxo complex, Fe₂Cr cluster, X-ray diffraction, thermal analysis.

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