

## SYNTHESIS AND CHARACTERISATION OF NEW {Fe<sub>2</sub>CrO} HETEROTRINUCLEAR IRON CLUSTERS

Viorina Gorinchoy<sup>a</sup>, Olesea Cuzan<sup>a\*</sup>, Silvia Melnic<sup>a,b</sup>, Oleg Petuhov<sup>a</sup>, Sergiu Shova<sup>a</sup>

<sup>a</sup>*Institute of Chemistry, 3, Academiei str., Chisinau MD 2028, Republic of Moldova*

<sup>b</sup>*State 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*

**Abstract.** Two new  $\mu_3$ -oxo trinuclear heterometallic Fe<sup>III</sup>Cr<sup>III</sup> complexes with furan-2-carboxylic and salicylic acids with the composition: [Fe<sub>2</sub>CrO(C<sub>4</sub>H<sub>3</sub>OCOO)<sub>6</sub>(CH<sub>3</sub>OH)<sub>3</sub>]NO<sub>3</sub>·0.5CH<sub>3</sub>OH and [Fe<sub>2</sub>CrO(C<sub>6</sub>H<sub>4</sub>(OH)COO)<sub>7</sub>(CH<sub>3</sub>OH)<sub>2</sub>]·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  $\mu_3$ -oxo complex, Fe<sub>2</sub>Cr cluster, X-ray analysis, thermal analysis.