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NEW COMPLEX COMPOUNDS WITH β -AMINOISOBUTYRIC ACID BIDENTATE LIGAND FOR POTENTIAL APPLICATION IN SUSTAINABLE AGRICULTURE

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Abstract

The synthesis and the study of the complexes obtained in this paper represent the beginning of our research for applied coordinative compounds of this type in agriculture. The analysis and the study of Mn(II) complexes with DL- β -Aminoisobutyric acid as ligand were accomplished in aqueous and alcoholic solution and also in solid state. The composition ratios and the stability of the synthesised compounds were analysed with specific methods: conductance, pH measurements, spectrophotometry and thermogravimetry. There were obtained two complexes, at the metal:ligand molar ratio 1:1 and 1:2. In order to determine the structures of the new compounds, the following methods were applied: chemical analysis, IR, UV-VIS and XRD spectroscopy. The $[\text{MnLCl}]_2 \cdot 2/5\text{H}_2\text{O}$ and $[\text{MnL}_2] \cdot 1/2\text{H}_2\text{O}$ presented a triclinic and respectively, monoclinic crystalline structure. From the thermal decomposition data, the kinetic parameters of the studied compounds were calculated observing that both new complex compounds have a higher thermal stability than the ligand. The experimental data confirmed that ligand DL- β -Aminoisobutyric acid presented a bi-dentate behavior towards Mn(II) ions in solution.

Key words: DL- β -aminoisobutyric acid, complex compounds, manganese (II)

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