

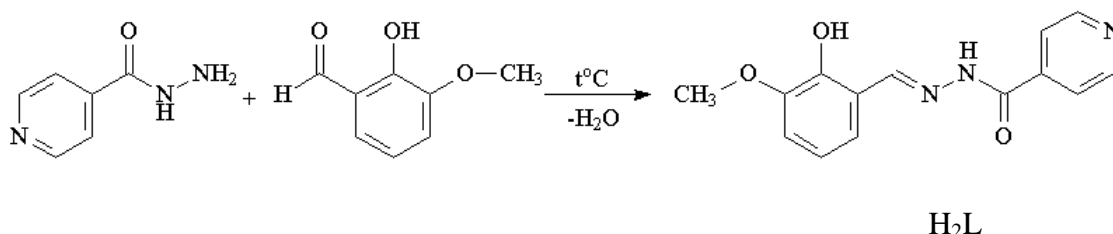
**STUDY OF MAGNETIC AND ANTIOXIDATIVE PROPERTIES OF SOME
BIOMETAL COORDINATION COMPOUNDS OF o-VANILLIN
ISONICOTINOYLHYDRAZONE**

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In this work some 3d-biometal coordination compounds of o-vanillin isonicotinoylhydrazone were synthesized and their properties were studied. o-Vanillin isonicotinoylhydrazone was obtained by condensation of 2-hydroxy-3-methoxybenzaldehyde with isonicotinic acid hydrazide.



It were synthesized 14 new coordination compounds of Cr^{3+} , Mn^{2+} , Fe^{3+} , Co^{3+} , Ni^{2+} , Cu^{2+} , Zn^{2+} with o-vanillin isonicotinoylhydrazone (H_2L). The composition of these coordination compounds were determined on the basis of data from elemental analysis: $\text{M}(\text{HL})_2\text{X}\cdot n\text{H}_2\text{O}$, where $\text{M} = \text{Co}^{3+}$, Fe^{3+} , Cr^{3+} ; $\text{X} = \text{Cl}^-$, NO_3^- ; $n = 1-4$; $\text{M}(\text{HL})\text{X}\cdot n\text{H}_2\text{O}$, where $\text{M} = \text{Ni}^{2+}$, Cu^{2+} , Zn^{2+} ; $\text{X} = \text{Cl}^-$, Br^- , NO_3^- ; $n = 2-6$; $\text{M}(\text{L})\cdot\text{H}_2\text{O}$, where $\text{M} = \text{Ni}^{2+}$, Cu^{2+} , Zn^{2+} , $n = 1-5$; $\text{Mn}(\text{HL})_2\cdot\text{H}_2\text{O}$.

Magnetochemical research showed that coordination compounds of cobalt and nickel are diamagnetic. The effective magnetic moments of synthesized copper coordination compounds are close to the spin value for one unpaired electron. Therefore it can be supposed that they have monomeric structures. Chromium, manganese, and iron coordination compounds are paramagnetic and the values of their effective magnetic moments correspond to octahedral structures and the oxidation number +3 for chromium and iron complexes and +2 for manganese coordination compound.

Antioxidants are substances capable to transform free radicals into inactive forms. They are used extensively in medical practice. The study of antioxidant activity of the synthesized coordination compounds showed that they inhibit the appearance of ion-radicals at the concentration 10^{-6} mol/L at the level of Trolox that is used in medical practice as a standard antioxidant. Antioxidant activity depends on the nature of the central atom and for the homotypic coordination compounds changes in the following way $\text{Co} > \text{Mn} > \text{Ni} > \text{Zn} > \text{Cr} > \text{Fe} > \text{Cu}$. Transferring of the ligand in doubly deprotonated form results in growth of the antioxidant activity. This work showed that the search of new antioxidants among biometal coordination compounds of ligands derived from isoniazid has prospects.

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