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SYNTHESIS OF SOME NEW COMPLEXES OF Cu(II) WITH BIOLOGICAL ACTIVITY

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The paper presents the synthesis of complex combinations of Cu(II) with Schiff bases obtained through the condensation of 4-amino-2,3-dimethyl-1-phenyl-3-pyrazolin-5-one (AAP) with o-hidroxybenzaldehyde (SAL), terephthalic aldehyde (TA), 2-hidroxy-3-metoxy-izofthalaldehyde (FV), 2,3-dihidroxy-izofthalaldehyde (DHV) respectively. The characterization of the newly formed complexes was done by ^{1}H RMN, UV-VIS, IR and RES spectroscopy, thermal derivatographic analysis and molar electric conductibility.

The RES spectrum for the complex combination $[Cu(C_{18}H_{16}N_3O_2)(H_2O)]Cl$, as a powder, at room temperature, indicates values of tensor{g} confirming the symmetry C_{2v} of the Cu^{2+} pentacoordinated ion. For the low symmetry Cu(II) ions, the fundamental state for the paramagnetic electron is not described by a single *d* function, but there is a mixture of them. The mixtures degree of these functions increases as the symmetry decreases. The high values of the {g} tensor confirm low symmetry.

The RES spectra for the complex combination $[Cu_2(C_{30}H_{28}N_6O_2)(SO_4)_2]$ as a powder, at room temperature, with values of the {g} tensor, $g_1 = 2{,}088$ and $g_2 = 2{,}446$, confirms the T_d symmetry. As it is noticed, the spectrum does not present interactions that might indicate a hyperfine structure. The lack of the hyperfine structure or the presence of very small hyperfine splitting for the Cu^{2+} ion in T_d symmetry, or lower symmetry were explained by C.A. Bates et all, by mixing the $4p_z$ orbital of the metallic ion with the $3d_{xy}$ orbital defining the fundamental state.

The determination of the anti-microbial activity of the ligands and of the complex combinations was realized on stems of *Escherichia coli, Klebsiella pneumoniae, Acinetobacter boumanii, Pseudomonas aeruginosa, Staphylococcus aureus* and *Candida sp.* The results of the qualitative and quantitative testing of the anti-microbial activity proved that all prepared combinations are very active especially when in contact with the stems of *Ps. aeruginosa, A. Boumanii, E. coli* and *S. aureus*.