

عنوان مقاله:

Complexation and Thermodynamic Studies of a New Schiff base Ligand with Some Metallic ions in Nonaqueous Solvents by Conductometric Method

محل انتشار:

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خلاصه مقاله:

The complexation reactions between N-N'-Bis(5-bromo-2-hydroxybenzylidene)-2,2-dimethylpropane-1,3-diamine Schiff base ligand and Ag⁺, Cd²⁺, Co²⁺, Cu²⁺, Hg²⁺, Ni²⁺, and Zn²⁺ ions were studied conductometrically in acetonitrile, dimethylformamide, ethanol, and methanol solvents at 5, 10, 15, and 25°C. The formation constants of the resulting ML and M₂L complexes were calculated from the computer fitting of the molar conductance-mole ratio data at different temperatures. The selectivity of the Schiff base ligand to the cations is depended the nature of the solvent. At 25°C in acetonitrile solvent, the stability of the resulting complexes varied in the order Hg²⁺ > Ag⁺ > Cd²⁺ > Cu²⁺ > Co²⁺ > Zn²⁺ > Ni²⁺. It was found that the stability of the resulting complexes decreased with increasing the solvation ability of the solvent. The values of the thermodynamic parameters (ΔH° , ΔS° and ΔG°) for complexation reactions were obtained from the temperature dependence of the stability constants values (log K_f) using the Van't Hoff plots. In most cases, the complexes were found to be an enthalpy and entropy stabilized.

کلمات کلیدی:

complexation, Conductometric, Formation constants, Schiff bases, thermodynamic parameters

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