SYNTHESIS AND CHARACTERIZATION OF HOMOTRINUCLEAR COMPLEXES OF 
NEW VIC-DIOXIME LIGANDS DERIVED FROM AZO COMPOUNDS

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In this study, three vic-dioxime ligands were synthesized by reacting anti-dichloroglyoxime with azo compounds derived from the reaction between 4-nitroaniline and 2,4-di-tert-butyl phenol, 3-tert-butyl-4-hydroxy anisol and 2-tert-butyl-4-methyl phenol. The \( \text{NO}_2 \) group of the azo compounds is reduced to amine group before the synthesis of vic-dioxime ligands. And then the homotrinuclear Cu(II), Ni(II) and Co(II) complexes of these ligands have been synthesized in the 3:2 metal:ligand ratio. The ligands and their complexes were characterized by elemental analyses, magnetic susceptibility and molar conductance measurements and \(^1\text{H}, ^{13}\text{C}-\text{nmr, infrared, Uv-visible spectroscopic techniques.}\)

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\begin{align*}
\text{H}_2\text{L}^1 & : R_1: \text{-C(CH}_3\text{)_3}, R_2: \text{-C(CH}_3\text{)_3} \\
\text{H}_2\text{L}^2 & : R_1: \text{-C(CH}_3\text{)_3}, R_2: \text{-OCH}_3 \\
\text{H}_2\text{L}^3 & : R_1: \text{-C(CH}_3\text{)_3}, R_2: \text{-CH}_3 \\
\text{M: } & \text{Cu(II), Ni(II) and Co(II)}
\end{align*}
\]

In the \(^1\text{H}-\text{nmr spectra of the diamagnetic complexes, the resonance due to the ortho hydroxy to the azo group (12.5-13.2 ppm) of the ligands disappeared in the complexes indicating that the ortho -OH to the -N=N-group of the oximes takes place in coordination to the metal ion. This supports our infrared interpretation. Magnetic moment values of the paramagnetic complexes per metal also show homotrinuclear structures. In the i.r. spectra of the ligands, the bending vibration of the oxime O-H group is observed in the 3180-3260 cm\(^{-1}\) range. In complexes, weak bending vibrations appear in the 1710-1740 cm\(^{-1}\) range.}\)