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Preparation and identification of newAzo (methyl-xanthine) ligands and theirtransition metal complexes.

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Abstract: Two of new azo methyl-xanthine ligands were prepared, via the reaction of the diazonium salt of amino antipyrine with the coupling components (caffeine and theophylline) in a 5% basic media in 0C° .Thelegends were identified with many techniques to ensure the formation of these compounds such (FTIR spectroscopy , elementary analysis and mass spectroscopy).

Three of divalent transition metal ion complexes (Co, Ni and Cu) for each ligand prepared, after the fixation of the preparation demands (optimal concentration, optimal pH and M:L ratio) , these were resulted from the an extensive UV-Visible study of the aqueous solutions of these complexes. Two methods were used for M: L ratio determination (the mole ratio & continuous variation methods),all these indicated the (1:2 ,M:L) ratios for all complexes.

The solid complexes were prepared and identified with the previous techniques (except mass spectroscopy).Indeed there are many complimentary techniques were used for the determination of the solid complexes geometry as (electrical molar conductivity, magnetic susceptibility).

All complexes have the ionic properties with the presence of chloride ion out of the coordination core.

Magnetic susceptibility data agreed with the present of (three odd electrons for cobalt complexes, two odd electron for nickel complexes & odd electron for copper complexes) for the two prepared ligands.

One pot data indicate the octahedral geometry for all complexes, and the prepared ligands behavesas bidentate ligand via the imidazole nitrogen and the far azo nitrogen atom.

Keywords : methyl xanthine - Azo, Azo compounds, caffeine, theophylline, transition metal complexes.

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