



## **Synthesis and characterization of new Azo-Chalcone ligand and its divalent transition metal ion complexes**

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**Abstract:** A new Azo-Chalcone ligand (SACAN) was synthesized via the reaction of the diazonium salt of pre-synthesized chalcone amine (SAC) with the coupling component 2-naphthol.

Both of the amino chalcone (SAC) the new azo dye (SACAN) were identified with the analytical techniques (elementary analysis, FTIR and Mass Spectroscopy for (SACAN)), for certainty of these compounds were prepared. A UV-Visible study was performed for the new ligand and their aqueous complexes for three divalent transition metal ion (Co, Ni and Cu), via determination the optimal concentration and  $\lambda_{max}$ , for use in the preparation of solid complexes after knowing the suitable mole ratios.

The solid complexes were prepared and diagnosed with the previous techniques, indeed the complementary techniques to suggest the complexes geometry were working out such (electrical molar conductivity, magnetic susceptibility and electronic spectroscopy), these will enhance in the suggestion of :

All complexes have non-electrolytic properties

Cobalt and Copper complexes have the octahedral geometry, while Nickel has the square planar geometry.