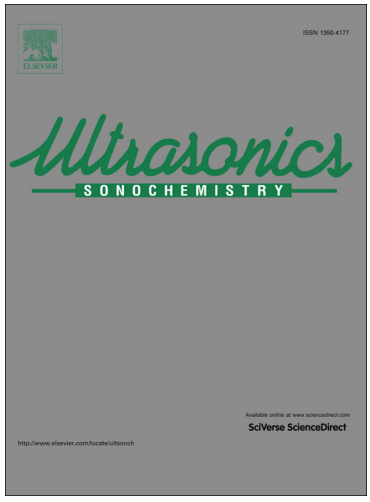


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# Sonochemical Synthesis and Characterization of New Nanostructures Cobalt(II) Metal-Organic Complexes Derived From the azo-cupling reaction of 4-Amino Benzoic Acid with Anthranilic acid, Salicylaldehyde and 2-Naphtol

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**Abstract**

Nanostructures of three new cobalt(II) complexes, ($CoL_1$). 0.5DMF. 1.5MeOH (**1**), [$H_2L_1$=5-(4-Carboxy phenyl azo) anthranilic acid], ($Co(L_2)_2$).1.5MeOH (**2**), [$HL_2$=5-(4-Carboxy phenyl azo) salicylaldehyde] and ($Co(L_3)_2$).0.5DMF.0.5MeOH (**3**), [$HL_3$=1-(4-Carboxy phenyl azo) 2-naphtol], have been synthesized by the reaction of $H_2L_1$, $HL_2$ and $HL_3$ with $Co(OAc)_2.4H_2O$ through sonochemical process. Calcination of the nano-sized compounds **1-3** yield $Co_3O_4$ nanoparticles at 450°C under air atmosphere. These nanostructures were characterized by X-ray powder diffraction (XRD) and Scanning Electron Microscopy (SEM). Thermal stability of compounds **1-3** was studied by thermogravimetric (TG) and differential thermal analyses (DTA).

**Keywords**: Nano-structure; Thermal decomposition; Sonochemical; Calcination; Azo Coordination Polymers.

## 1. Introduction