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Template Synthesis, Structural Elucidation and Biological Activities of Mixed Ligand Macrocyclic Complexes of Cr (III)

C. P. Bhasin* and B. N. Thakkar

*Department of Chemistry, Hemchandracharya North Gujarat University, Patan-384265, (Gujarat) **INDIA**

Email: cpbhasin@yahoo.com

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ABSTRACT

Alkylene dithiophosphate derivatives of macrocyclic complexes of Cr(III) having N_4S_4 potential donors, of the general formula, $[Cr(L)\{S_2P(O)(O)G\}_2]Cl$ where L=macrocyclic ligands L^1, L^2, L^3, L^4, L^5 and G=$CH_3–CH–CH–CH_3$, $(CH_3)_2–C–C–(CH_3)_2$, $(CH_3)_2C–CH_2–CH(CH_3)$, CH_2-C $(CH_3)_2$-CH_2 and CH_2-C$(C_2H_5)_2$-CH_2 *have been synthesized from the reaction of* $[Cr(L)X_2]_X$ *where* $X = Cl^-$, NO_3^- *or* CH_3CHOO^-, *with ammonium alkylene dithiophosphates in 1:2 molar ratios in THF. These complexes have been characterized by elemental analysis, molar conductance, molecular weight determinations, IR,* ^{31}P *NMR, electronics spectra and magnetic measurements. The anti-microbial of these derivatives have been studied by screening them Aspergillus flavus, fusarium oxysporum, Trichoderma harzianum and bacteria like Salmonella typhi and Bacillus subtili. Alkylene dithiophosphate derivatives were found to be more fungitoxic and antibacterial than their corresponding macrocylic complexes.*

Keywords: Macrocyclic complexes, *bis*-(2-aminophenyl) disulphide, Cr(III).