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Characterization and Antimicrobial Activity of Organotin(IV) Complexes of 2-[(2',6'-diethylphenylamido)]benzoates and 3-[(2',6'-diethylphenylamido)]propanoates

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Abstract: New organotin(IV) complexes with 2-[(2',6'-diethylphenylamido)] benzoic acid (HL¹) and 3-[(2',6'-diethylphenylamido)]propanoic acid (HL²) were synthesized by the reaction of di- and triorganotin salts in the presence of triethylamine as base or dioctyltin oxide using a Dean and Stark trap for the removal of azeotropic water. All complexes were characterized by elemental analysis, IR, NMR, and mass spectral studies, and proof that tin-ligand coordination involves only the carboxylate group and complexes show hexa-coordinated geometry in solid state. Multinuclear NMR data show that triorganotin complexes exhibit 4-coordinated geometry while diorganotin complexes show a coordination number greater than 4, probably 5 or 6 in solution state. These complexes were screened to check their antimicrobial activity in vitro. The complexes of 2-[(2',6'-diethylphenylamido)]benzoic acid (HL¹) were also checked for their insecticidal and anti-leishmanial activity. All the complexes show significant activity with few exceptions.

Key Words: Organotin(IV) carboxylates, spectroscopy, anti-leishmanial, insecticidal antibacterial, antifungal, cytotoxicity

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