

Synthesis, Characterization, Novel Interaction of DNA, Antioxidant and Antimicrobial Studies of New Water Soluble Metallophthalocyanines Posture Eight Hydroxyphenyl Moiety via 1,3,4-oxadiazole Bridge

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Abstract

The new peripheral 2(3),9(10),16(17),23(24)-tetra-5-[4,4'-diphenol]-phenyl-[1,3,4]-oxadiazole substituted metallophthalocyanine (MPc) complexes has been well designed and executed. Due to high conjugation and excellent solubility in water makes them potential use in DNA binding and cleavage studies. Fourier transform infrared spectroscopy, nuclear magnetic resonance, electron spin ionization mass spectra data, and elemental analysis confirmed the well-defined saddle-like distorted structures for these substituted MPc complexes. The successful synthesis of these novel water soluble MPc moieties were employed as an effective DNA binding with calf thymus DNA was monitored using ultraviolet-visible spectral titrations and cleavage pBR322 DNA conceded in the absence of reductant by agarose gel electrophoresis method. The results indicate that all these water soluble complexes significantly show excellent binding and modest cleavage sensitivity activity. It is noteworthy that **6** and **7** exhibit potential antimicrobial and appreciable antioxidant activity with other water soluble phthalocyanines.