UNIVERSITA' DI MESSINA
FACOLTA' DI SCIENZE

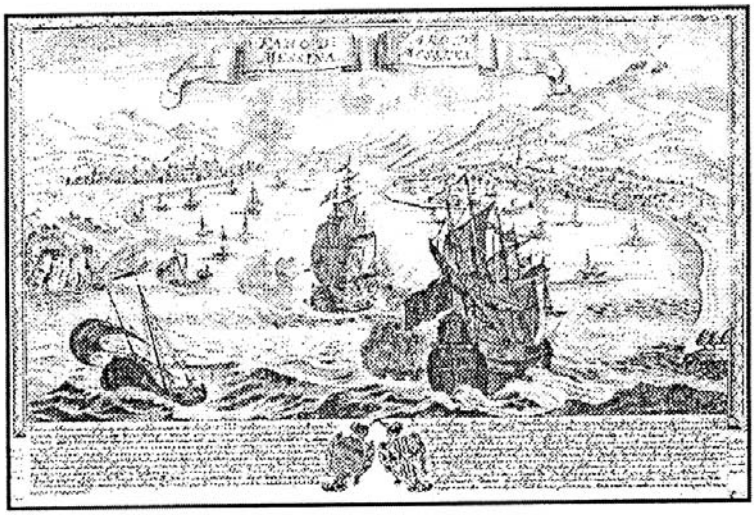
Dipartimento di Chimica Inorganica, Analititca
e Struttura Molecolare

Società Chimica Italiana
visione di Chimica Inorganica

Atti Accademia Peloritana dei Pericolanti
Classe I di Scienze Fisiche
Matematiche e Naturali

WORKSHOP ON PLATINUM CHEMISTRY

ABSTRACTS



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SYNTHESIS, CHARACTERIZATION AND DNA BINDING STUDIES OF A NOVEL PLATINUM(II) (2,2':6',2"-TERPYRIDINE) CATIONIC COMPLEX

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A new organometallic cationic complex of platinum(II) containing 2,2':6',2"-terpyridine (terpy) ligand of the type [Pt(terpy)Me]X (X=Cl, NO_3, PF_6, ClO_4) was synthesized and characterized by ^1H, ^{13}C and ^{195}Pt NMR spectroscopy. There was no evidence of fluxionality for the terpyridine ligand that behaves as a terdentate while the fourth position in the coordination plane is blocked by the methyl group. Thus, resulting cationic complex is unreactive toward substitution under mild conditions. The high planarity of the terpy moiety is responsible for the occurrence of stacking interactions in aqueous solution with the formation of dimer or even higher oligomers. UV/VIS and ^1H NMR spectra show a characteristic dependence on the concentration of the complex, on the temperature, solvent and ionic strength. Analysis of the absorption spectra gives a value of 8800 M^{-1} for the dimerization equilibrium. The

interaction of the cationic complex with calf thymus DNA and two synthetic polynucleotides (Poly(dG-dC)$_2$ and Poly(dAdT)$_2$) was investigated by UV-VIS and CD spectroscopy. The value of the binding equilibrium constant of the complex with the double helix was estimated to be 10^5 M^{-1} by UV-VIS spectroscopy measurement. Gel electrophoresis on agarose of pUC19 and melting point measurements strongly support an intercalative mode of interaction.

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