Palladium(II) complex with 1-(2-pyridylazo)-2-napthol(PAN): Synthesis, X-ray structure, electrochemistry, DFT computation and DNA binding study

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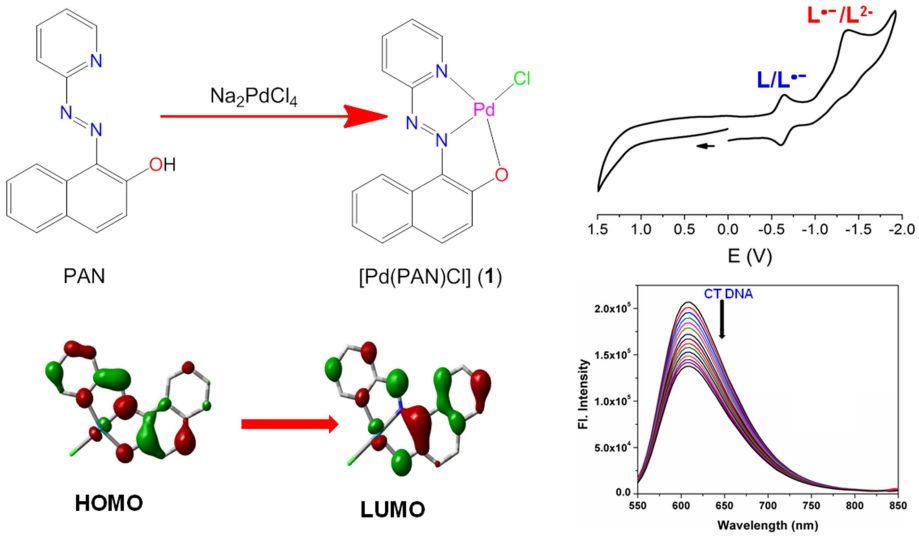

Abstract

Herein, we reports a simple approach for the synthesis of a palladium(II) complex with 1-(2-pyridylazo)-2-napthol (PAN). The complex is characterized by several spectroscopic techniques. The structure is confirmed by single crystal X-ray diffraction method. The interaction of the complex with CT DNA is investigated by UV-vis method and binding constant is found to be 3.9 × 10^4 M^{-1}. Competitive binding titration with ethidium bromide (EB) by fluorescence titration method reveals that the complex efficiently displaces EB from EB-DNA system and the Stern-Volmer dynamic quenching constant, Ksv is found to be 1.55× 10^4 M^{-1}. Electronic structure and UV-vis spectrum of the complex are well interpreted by DFT and TDDFT calculations.

Key words: Palladium(II) complex; X-ray structure; Electrochemistry; DNA binding study; DFT calculation.

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