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Organopalladium(II) complex bearing curcumin: Synthesis, characterization and biomolecular binding studies

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Abstract

In the last decades, a significant amount of research has been carried out designing and discovering new metallodrugs with lower level of limitations of Cisplatin, a first metal-based antitumor agent with worldwide use in cancer treatment.[1,2] To achieve a new metal complex with improved antitumor activity and decreased cytotoxicity, both the metal center and the surrounding organic ligands play key roles.[3] In the current study, C^N-cyclometalated Pd(II) complex (C^N=2-phenylpyridine) bearing curcumin, a golden nutraceutical agent, as a bioactive ligand was synthesized and characterized using elemental analysis, FT-IR, and NMR techniques. To better understand the mechanism of action, the binding behavior of complex toward the relevant biomacromolecular targets were studied using UV-Vis and fluorescence spectroscopic techniques. Biophysical study toward DNA and protein biomacromolecules revealed high affinity of complex. The new synthesized curcumin-bearing organopalladium(II) complex indicated potential anticancer activity which can be further studied to be considered as a potent metal-based agent.

Key words: Organometallic complex; Palladium; Curcumin; Biological activity

References

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