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Metallonucleases encompassing curcumin, 2-aminobenzothiazole and o-phenylenediamine: a search for new metallonucleases

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Abstract

A few novelmetallonucleases were synthesized from curcumin derived Schiff base incorporating 2-aminobenzothiazoleand o-phenylenediamine. By characterization, these complexes were found to have 1:1:1 stoichiometry [M:L:o-Ph]. They were inferred to be electrolytic in nature in accordance to the values of molar conductance. From the spectral data the proposed geometry of all the complexes was deduced to be square planar. The complexes were screened against a few pathogens for their antimicrobial activities which reveal that they are efficient antimicrobial activity than the free ligands. The interactions of CT-DNA were studied by UV spectrophotometric, viscosity and cyclic voltammetric techniques. The complexes with higher values of K_b are optional to have greater DNA binding propensity. They have potent interaction with the CT-DNA and hence they are proficient DNA cleavable linkers due to their importance in biotechnology and drug design. Furthermore, the copper(II) complex exhibits efficient DNA cleavage with supercoiled pBR322 involving hydrolytic cleavage pathway. © 2021 Taylor & Francis Group, LLC.

Author keywords

antimicrobial activity | Curcumin | DNA binding | intercalation | metallonucleases

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