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TITLE

Synthesis, Characterization and Antimicrobial Activities of Novel Oxovanadium(IV) Hydroxamate Complexes

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The coordination chemistry of vanadium has drawn enormous research interest owing to promising insulin-mimetic, appetite-suppressing and anti-hypertensive effects displayed by vanadium complexes. The biological relevance of vanadium regarding the essentiality, distribution and toxicity in +4 and +5 oxidation states has been abundantly established. Of the numerous ligands known to form vanadium complexes, hydroxamic acids (naturally occurring or synthetic) constitute an important family of organic bioligands with NHOH moiety as constituent of antibiotic and antifungal agents, food additives, tumor inhibitors and growth factors because of their low toxicities. The biological and medicinal importance of hydroxamic acids owing to their pharmacological, pathological and toxicological properties is well-documented. The powerful biological activity of hydroxamic acids is related to their ability to form stable metal chelates.

In view of the biological importance of vanadium and hydroxamic acids, new oxovanadium (IV) hydroxamate complexes derived from 4-nitrocinnamo and nicotino hydroxamic acids have been synthesized. The newly synthesized complexes have been structurally characterized by physicochemical, spectral (IR, UV-Vis, ESR, Mass) and electrochemical studies. As the development of effective antimicrobial drugs is a matter of great concern, the antimicrobial activities of newly synthesized complexes have been evaluated against some pathogenic bacteria as *E.coli*, *S.aureus*, *S.typhi*, *S. paratyphi*, *S.epidermidis* and *K.pneumoniae* and fungi such as *C.albicans*, *A.niger* and *F.oxysporum* by minimum inhibitory concentration method. The complexes exhibited promising antimicrobial activity relative to standard drug compounds. Cytotoxicity of complexes was studied on mammalian transformed cell line Hep2C, a derivative of human cervix carcinoma HeLa cells by means of MTT assay. The detailed results will be presented.