Synthesis, thermal properties and biological study of metal(II) nicotinamide complexes containing fumarate dianion and fumaric acid: crystal structure of [Ni(H 2 O) 4 (nia) 2](fum)·(H 2 fum)

Abstract

New divalent transition metal nicotinamide (nia) complexes containing fumarate (fum) dianion and fumaric acid (H2fum), [M(H2O)4(nia)2](fum)·(H2fum) [M = Co (1), Cu (2) and Ni (3)] have been synthesized. The compounds were characterized by elemental analyses, IR, UV-vis, XRPD and TGA. Structural analysis of 3 using single crystal X-ray diffraction technique revealed that the Ni(II) ion is coordinated by four aqua and two nicotinamide ligands in an octahedral geometry. The structure of 3 is completed with fumarate (fum^{2-}) dianion acting as counter-ion while fumaric acid (H2fum) is present as a molecule of solvation. The three complexes were investigated for biological activities.