Abstract

Heterobimetallic Ni and Mo complexes [Ni(L)$MoO_2(A)_4$]·nH_2O (A = H_2O (1), py (2), 2-pic (3), 3-pic (4), and 4-pic (5); n = 0, 2) and [Ni(L)(MoO_2)($BB)_2$](BB = bpy (6) and (phen (7))) were synthesized from the multidentate ligand disalicylaldehyde oxaloyldihydrazone (H_4L) in MeOH. The compn. of the complexes was established based on data obtained from elemental analyses, thermoanalysis, mass spectral and mol. wt. studies. The probable structures of the complexes are discussed in the light of molar conductance, magnetic moment data and electronic, EPR and IR spectral studies. In all of the complexes, the dihydrazone is present in enol form and coordinates to the metal center as a tetrabasic hexadentate ligand. All of the complexes are normal paramagnetic to the extent of two unpaired electrons per Ni atom. The μ_{eff} values for the complexes lying in the region 2.87-3.07 μ_B are consistent with the octahedral stereochemistry of Ni(II) in the heterobimetallic complexes. The EPR and electronic spectral data also support the distorted octahedral stereochemistry of the Ni(II) center. Both Ni and Mo have octahedral geometry in the complexes.