Synthesis and Spectral Studies of Pyranone Derivative and Its Cu(II), Co(II), Ni(II) and Zn(II) Complexes[1]

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Abstract—Under the thermolysis condition, 5-phenyl-2,3-dihydro-2,3-furandione (**IV**) in inert aprotic solvents as *p*-xylene at 130–140°C yields 3-benzoyl-4-hydroxy-6-phenyl-2*H*-pyran-2-one (**VI)** *via* phenyl ketene (**V**). The compound (**VI**) was converted into the corresponding 3-benzoyl-4-hydroxy-6-phenylpyridin-2(1*H*)-one (**VII**), and 3-benzoyl-2-oxo-6-phenyl-2*H*-pyran-4-yl acetate (**VIII**), by its reactions with ammonium hydroxyde, and acetic anhydride, respectively. On the other hand, a series of new various metal complexes (**IX-XIa, XIb**) of **VI** was synthesized. The results suggest that the compound **VI** as bidentate ligand indicate a binuclear structure for the Cu(II) complex with square-planar geometry. The Ni(II) and Zn(II) complexes are of tetrahedral and the Co(II) complex is also octahedral geometry with water molecules at the axial positions. The structures of compounds and complexes were characterized on the basis of elemental analysis, Mass, IR, ^{1}H, and ^{13}C NMR spectra.

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