

ABSTRACT

Palladium (II) complex derived from piperdin-4-ones has been prepared and characterized. Structural features were obtained from their elemental analyses, magnetic susceptibility, molar conductance, FT-IR, electronic spectra, ^1H , ^{13}C NMR spectral studies and thermal data. The formation of 1:2 [M:L] complex shown by elemental analysis. The molar conductance measurement reveals an electrolytic nature. The data show that spectral and magnetic studies on these complexes indicate that they are four coordinate, with square-planar geometry. It was diamagnetic. The thermogravimetric analysis confirmed that palladium (II) was decomposed to give metal oxide. The free mannich base and its complex were tested for *in vitro* anticancer activity in cervical HeLa cell line and antimicrobial activity against different bacterial and fungal strains. They show detectable activity against anticancer and antimicrobial screening. It has been found that all the complexes are active and show higher activity than the free ligands by suggesting palladium(II) complexes were promising metal-based pharmacological drug.