

Supplementary Information

Synthesis and structural studies of Mn(II) and Zn(II) thiazole–Schiff base complexes with catalytic application in benzyl alcohol oxidation

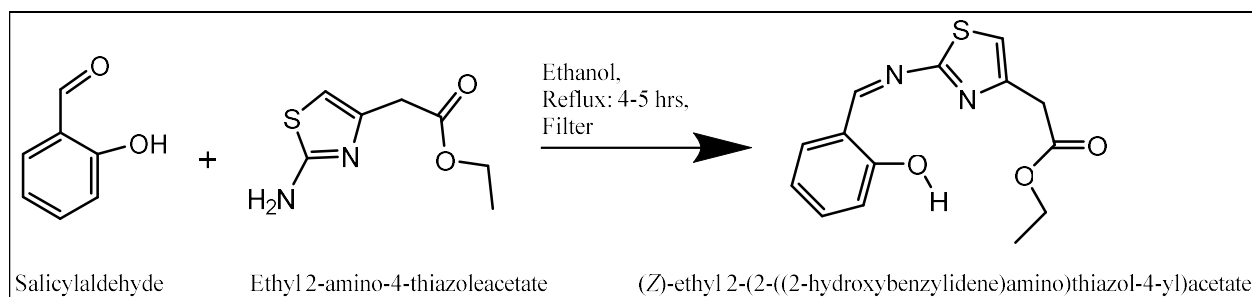
Gurdeep Sangwan^a, Jyoti Sharma^{*a}, Sonu Prasad^a & Vikas Rathod^b

^a Department of Chemistry, MMEC, Maharishi Markandeshwar (Deemed to be University), Mullana 133 207, Haryana, India

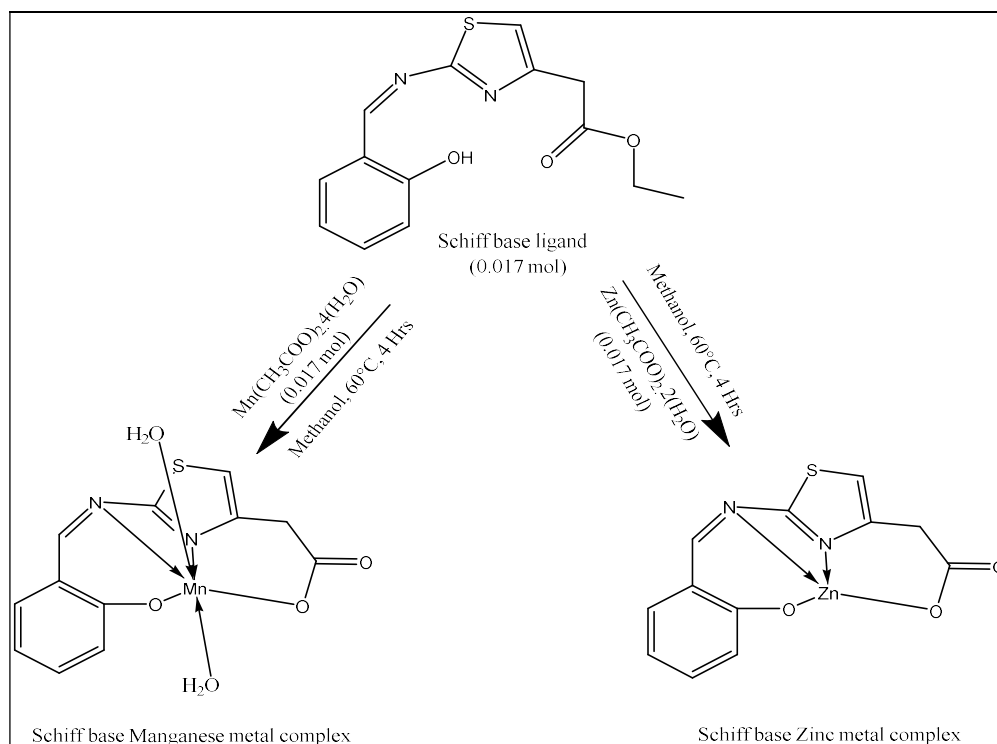
^b IOL Chemicals and Pharmaceuticals, Barnala 148 101, Punjab, India

E-mail: jsharma117@gmail.com

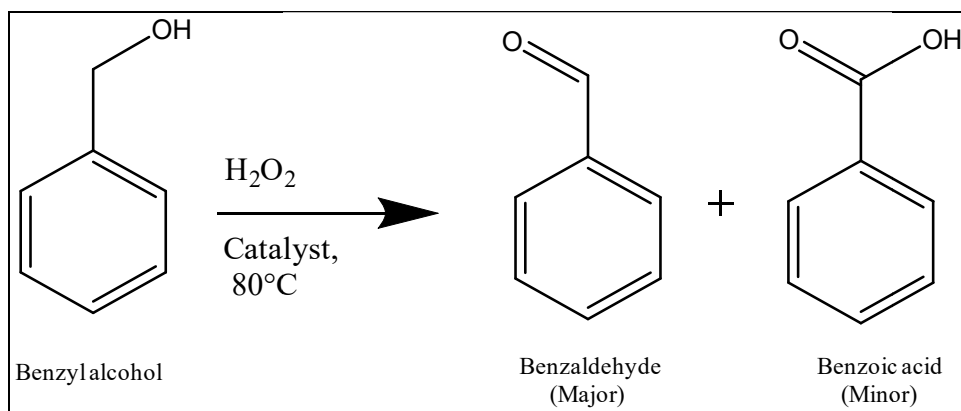
Received 22 October 2025; accepted (revised) 3 February 2026



Scheme 1: Synthesis of Schiff base ligand



Scheme 2: Synthesis of MnL and ZnL metal complexes



Scheme 3: General conditions for catalytic oxidation of benzyl alcohol

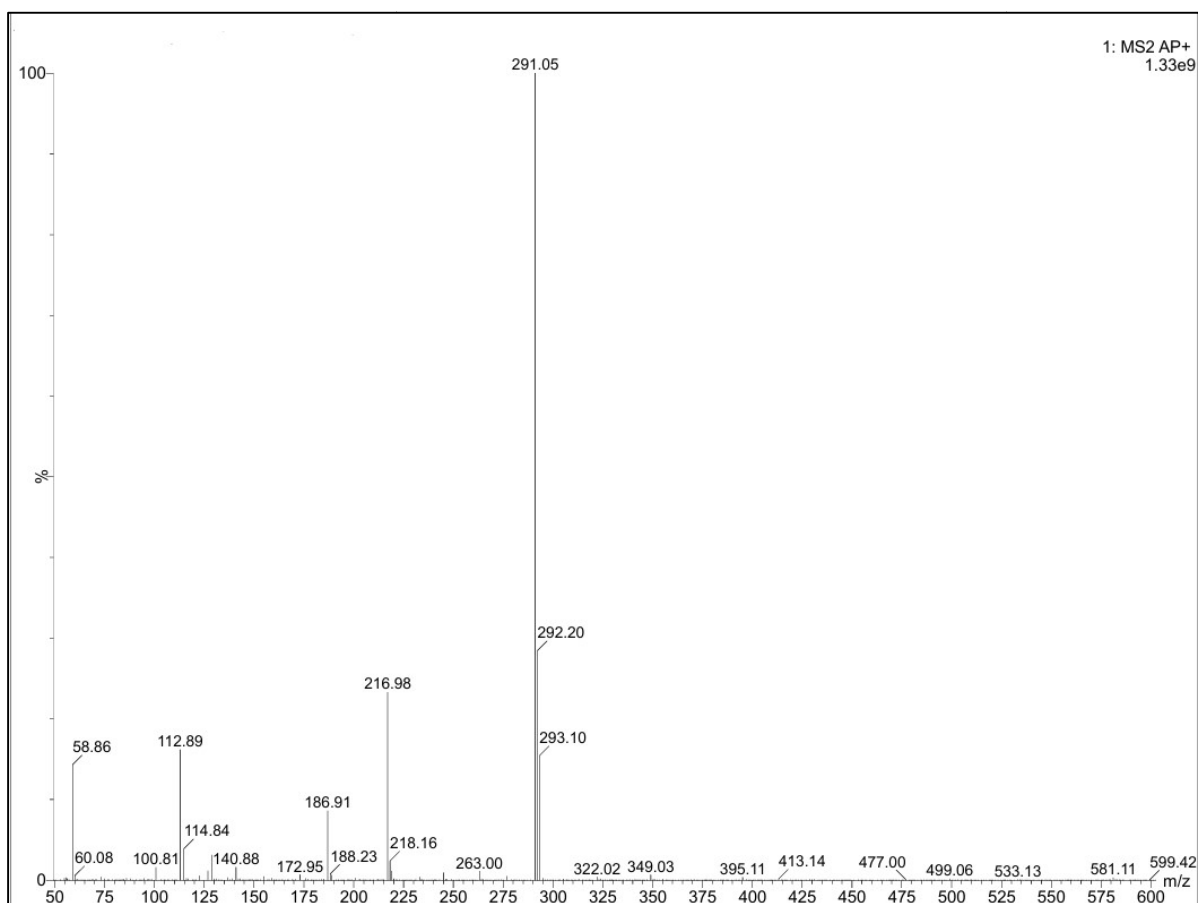


Fig.1: LCMS spectra of Schiff base ligand

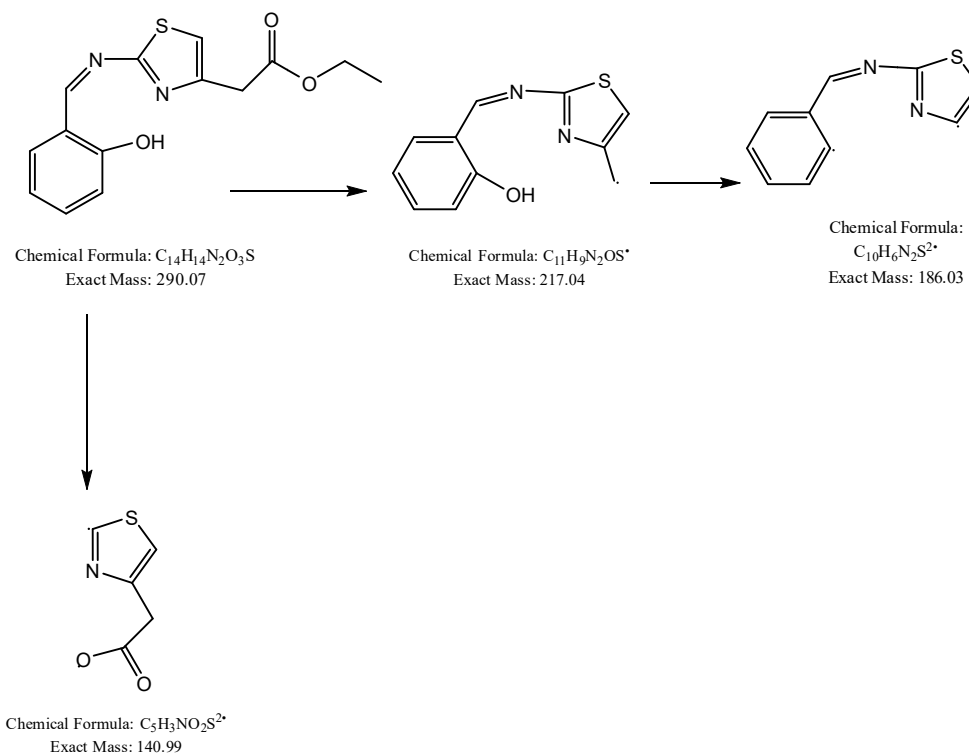


Fig. 2: Mass fragmentations of Schiff base ligand

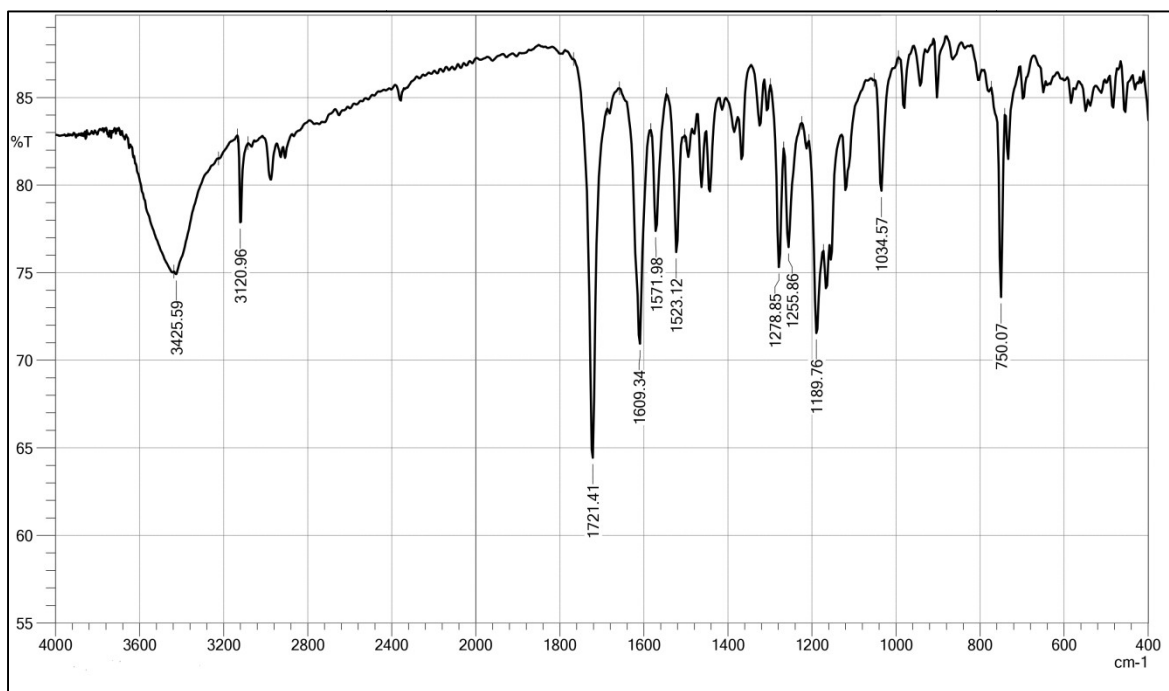


Fig. 3: IR spectrum of Schiff base ligand

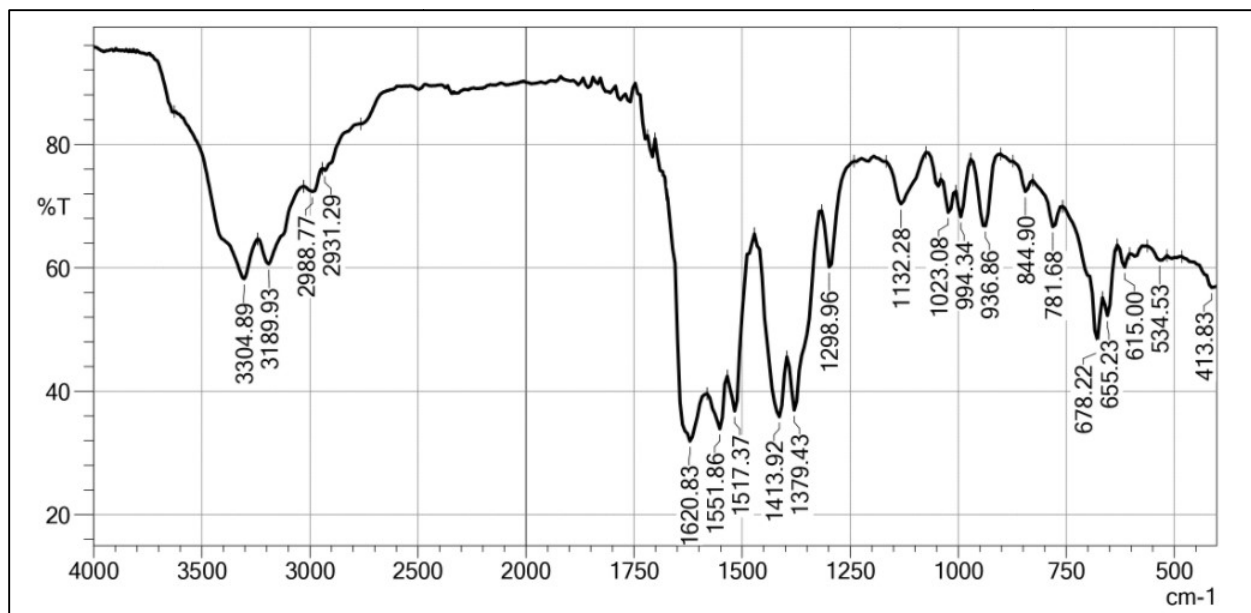


Fig. 4: IR spectrum of MnL

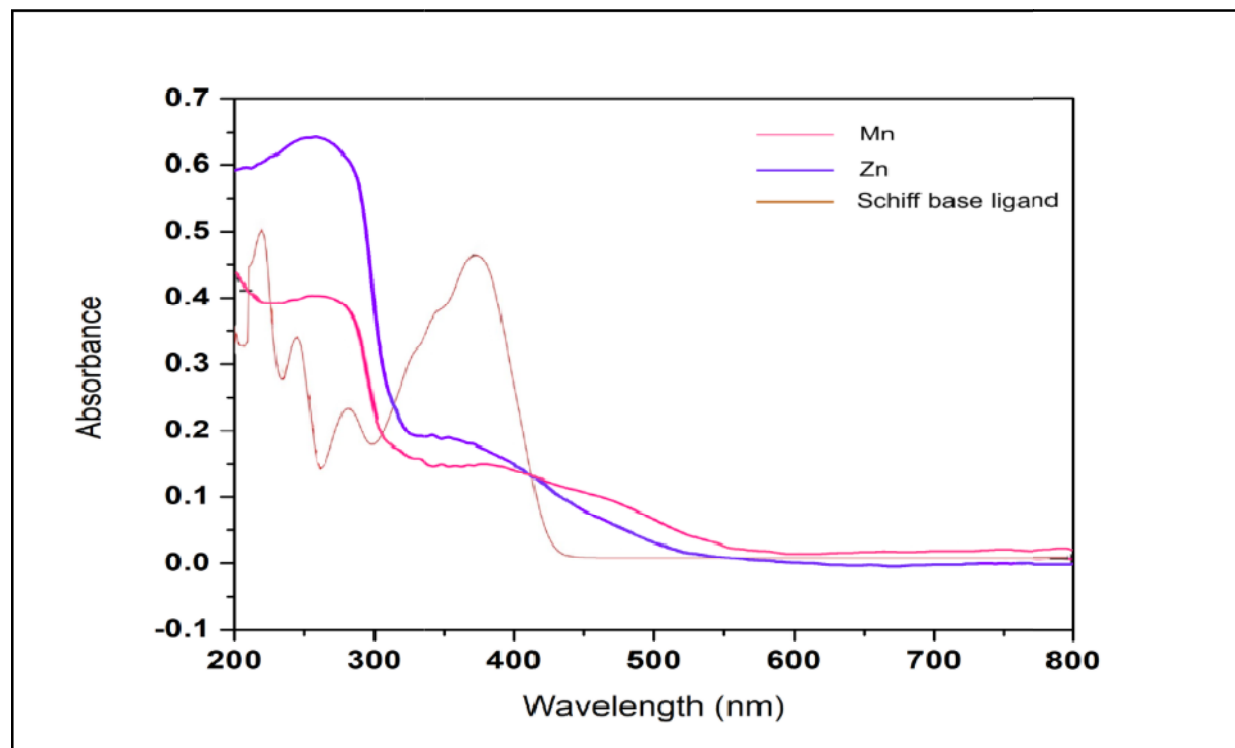
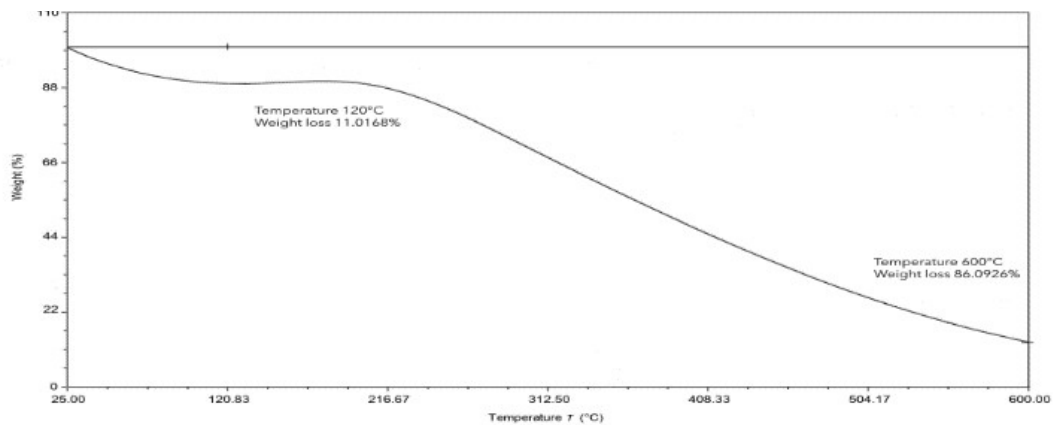


Fig.5: UV-Vis Spectral Analysis of Schiff Base ligand (L) and MnL&ZnL Complexes



TA Instruments Trios V5.7.2.101

Fig.6: TGA analysis of MnL metal complex

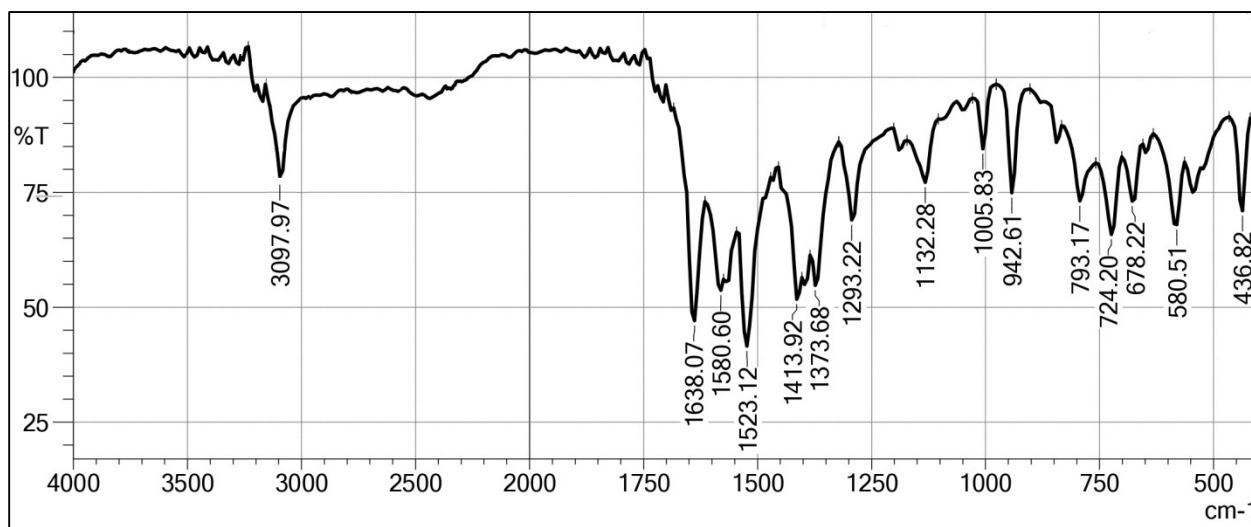


Fig. 7: IR spectrum of ZnL

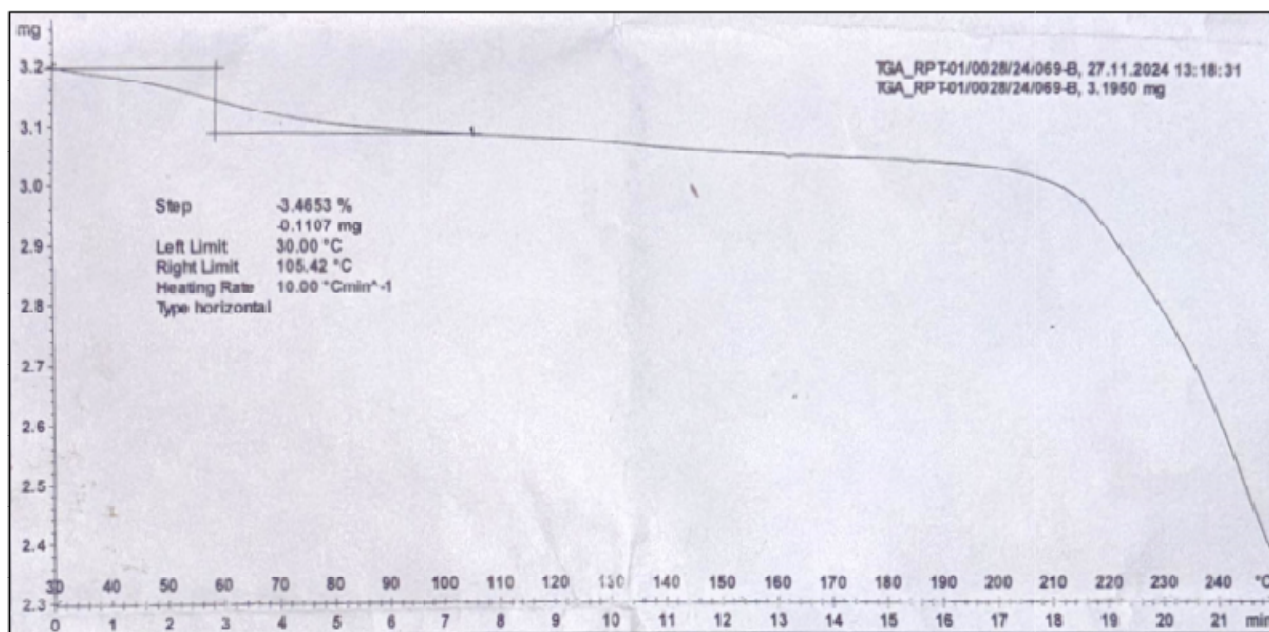


Fig.8: TGA analysis of ZnL metal complex

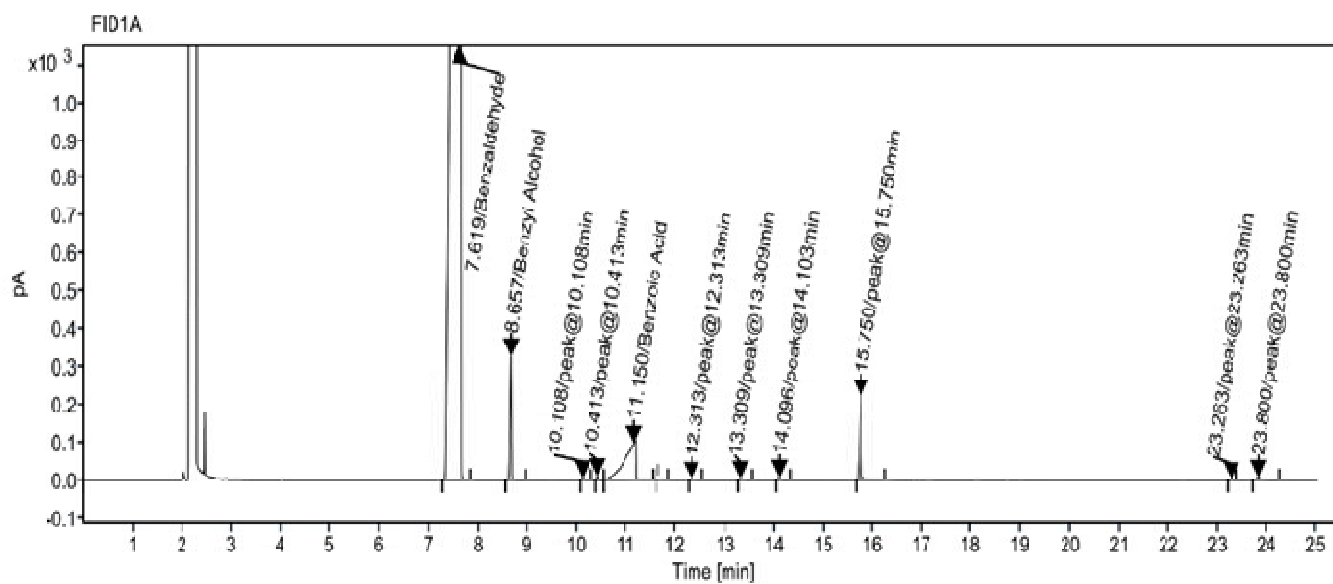


Fig. 9: GC reaction monitoring data with 20% w/w MnL catalyst and Acetonitrile as solvent

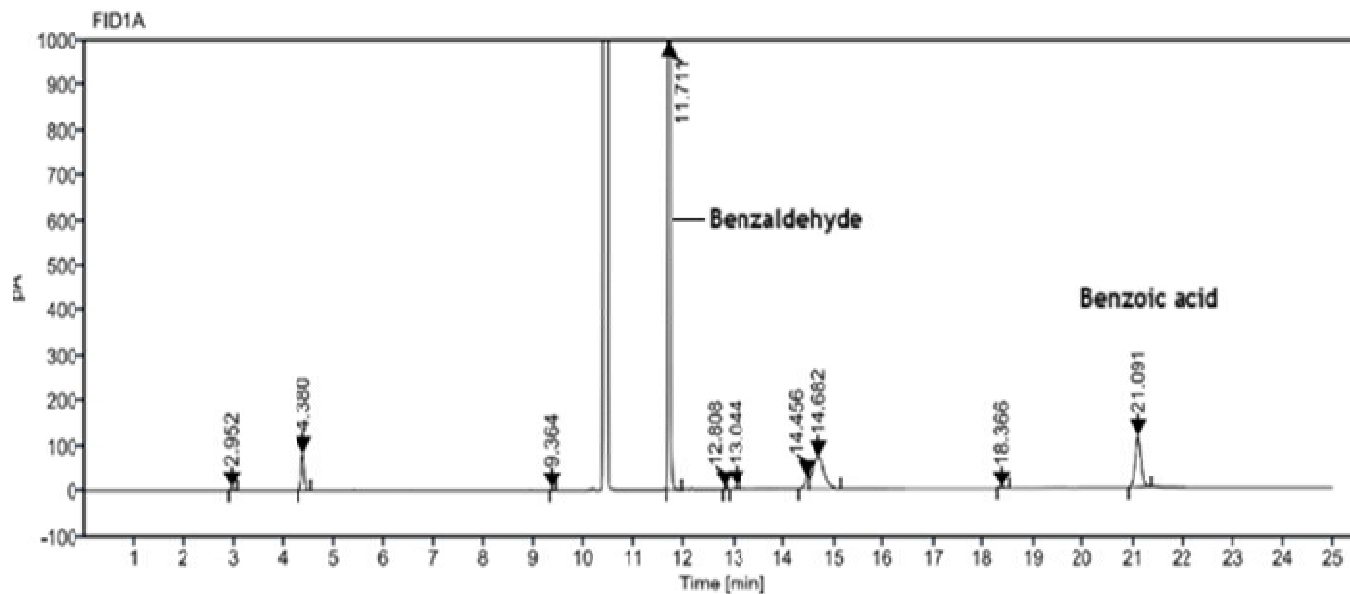


Fig. 10: GC reaction monitoring data with 5% w/w MnL catalyst and DMF as solvent

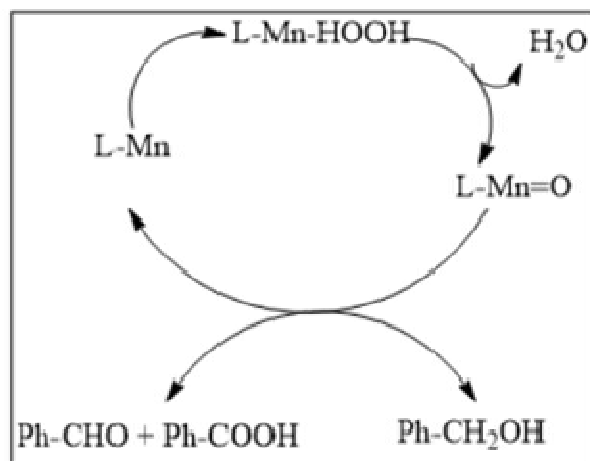


Fig. 11: Plausible mechanism of reaction of MnL catalyst