Thermal studies of cobalt, nickel and copper complexes of anthracene carboxaldehyde –DL-Alanine have been carried out. The kinetic parameters like the change in entropy, Arrhenius factor and activation energy of the decomposition of complexes were determined. Their decomposition mechanism and order of decomposition reaction were calculated. Anthracene Carboxaldehyde Alanine synthesized is a bidentate ligand. All complexes are colored and are soluble in hot methanol and ethanol. Co (II), Ni (II), and Cu (II) complexes synthesized, assigned the general formula \([ML_2(H_2O)_2]\). Using Mechanistic equation, it is observed that, the cobalt and copper complexes have cylindrical symmetry and spherical symmetry for nickel complex, Order of decomposition for cobalt complex is \(\frac{1}{2}\), for nickel complex it is \(\frac{2}{3}\) and for copper it is \(\frac{1}{3}\).

**KEYWORDS:** Arrhenius Factor, Entropy of Activation, Parameters, Bidentate & Thermal Decomposition