



## ABSTRACT

The coordination polymers, MOFs, have attracted great interest as a promising candidate for the sustainable energy and environmental remediation. In the study, four coordination metal complexes have been synthesized by using precursors *d*-block and *f*-block elements and 1,4-Benzenedicarboxylic acid. These metal complexes were prepared by using the hydrothermal and reflux methods. These metal complexes were synthesized by exploiting different reaction conditions such as pH, solvents and mole ratio. The synthesized complexes were characterized by Elemental analysis and FTIR spectroscopy. The proposed structures of the complexes were also plotted that were well in agreement with the data obtained through Elemental analysis. Furthermore, the photocatalytic potential of these metal complexes was also evaluated against Methylene blue and Crystal Violet dyes. The results revealed an efficient degradation of methylene blue and Crystal Violet upto 66.6% and 58% respectively. The exciting results of photodegradation activity of the complexes have made these complexes an ideal contestant for their potential applications in environment remediation