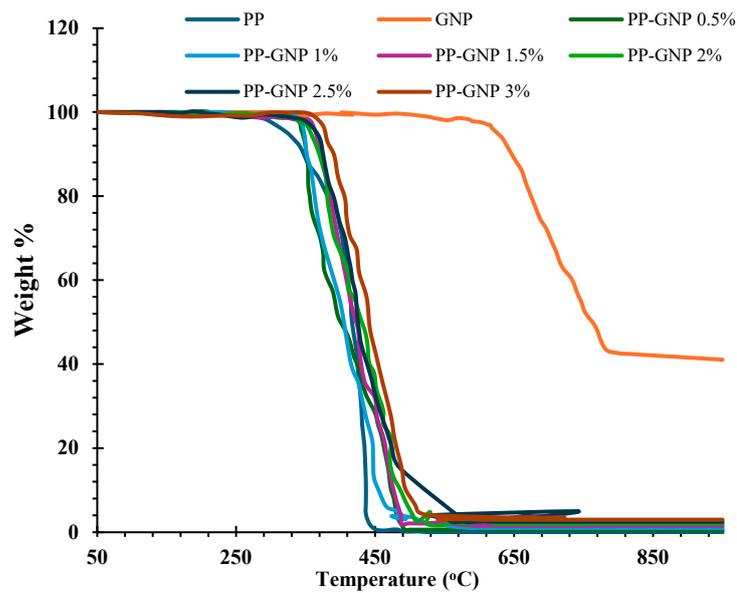


Thermogravimetric Analysis (TGA) is essential for evaluating the thermal stability and composition of polypropylene (PP), graphene nanoplatelets (GNPs), and their composites. The analysis reveals that PP experiences significant weight loss during thermal degradation between 350-450°C, leaving minimal residue as presented in Figure. In contrast, GNPs demonstrate high thermal stability, with substantial weight loss occurring above 600°C and retaining non-combustible residual mass. The thermal stability of PP-GNP composites improves with the incorporation of GNPs, resulting in higher decomposition temperatures and increased residual mass compared to pure PP, due to the presence of thermally stable GNPs.



**Figure S1: TGA analysis of PP, GNP GNP/PP Composite.**