In this study, the effects of irradiation on pure polyaniline and polyaniline/bentonite composites synthesized chemically were investigated by means of thermogravimetric measurements, UV, SEM, XRD, absorption and temperature dependent electrical conductivity in the temperature range of 85 e400 K.

The irradiation process was carried out in air in a conventional gamma chamber, which uses a 60Co source and the samples were exposed to dose 40 kGy. The initial decomposition and first degradation temperatures of PAni/Bnt and Irradiated PAni/Bnt composites obtained from thermogravimetric measurements were higher than those of PAni and irradiated PAni. This could have been caused by the treatment with bentonite during aniline polymerization. The XRD patterns revealed that the peak positions of the as-prepared and irradiated samples were the same but the intensities of the peaks decreased with irradiation due to breaking of the polymer chain, which induces more amorphous regions in the polymer structure. It was found from temperature dependent conductivity measurements that the radiation signi
significantly influenced the conductivity of PANi and PANi/Bnt composites. The conductivity results show that the dominant conduction mechanisms were hopping for all samples due to wide range of localized states present near the Fermi level.