



Synthesis and Characterization of Polyaniline-Carbon Nano Composites

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In our research work, we prepared polyaniline coated carbon nanocomposite. In which β -Naphthalenesulphonic acid (β -NSA) was used as surfactant and dopant which offers the uniform coating on Carbon nano composites. Polyaniline (PANI)-Carbon nano composites have been prepared by in-situ emulsion polymerization. The XRD of PANI- carbon nano composites also show the sharp peak , which can be used for selective incorporation of other carbon forms. The synthesis of polymer based nano composites is one of the major advancement in polymer based materials. The simple synthesis, nanoscale dimensions, biodegradable-character, high aspect ratio, light weight, cost effectiveness and sustainability aspect have all established a drive for these types of materials. Polymer nanocomposites are novel materials with significantly enhanced properties owing to the migration of a small amount (<5wt%) of nanoparticles e.g. metal nanoparticles, metal oxide nanostructures, carbon nanotubes, graphene and graphene oxide in to a polymer matrix.

Polymer nanocomposites have numerous applications e.g. in wind turbine devices, sensor devices, hydrogen storage devices, lithium battery, catalytic degradation, sorption process for removal of environmental contaminants, water treatment, waste water treatment, containing inorganic and organic substances e.g. heavy metals, sulphates, phosphates, phenols, dyes, pesticides etc.by adsorption techniques. These composites are very much useful in synthesis of eco- friendly compounds in the field of green chemistry. Academic and industrial applications of polymer nanocomposites can not be ruled out.