



Recent advances of economically synthesised polymers/composites consisting of graphene and silver nanoparticles to achieve sustainable existence

Gazala Praveen¹ · Sanchayita Rajkhowa²

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Abstract

Modified composites, blends, polymers and copolymers are some of those engineered materials which are playing a major and remarkable role in achieving our present sustainable environment. Mechanical, electrical, and biological properties of carbon and native metal nanoparticles are distinctive from others and provide plentiful scaffolds for a wide-range of applications in our lives, including medical devices, pharmaceutical, polymer industry, biomedical field, coating of kitchen appliances, food packaging, clothing, gifts, optical devices, biosensors, antimicrobial objects etc. Distinct chemical and physical properties of silver and carbon-based NPs are considered to act in this way. The antimicrobial and conducting nature of Gr and AgNPs are studied here. There is a vast history of these properties; however, beginners still have a bright future. The antimicrobial activity of these two incorporates antibacterial, antifungal, antiviral, anticancer, antioxidant, antistatic and antibiotic nature. Additionally, both nanomaterials exhibit notable thermal conductivity. Based on these characteristics novel compositeblend materials with enhanced electrical, thermal, antimicrobial, antistatic, and antibiotic effect can be engineered with innovative ideas. This paper expresses the worldwide applications of such nanomaterials.

Keywords Antimicrobial activity · Composite · Conducting nature · Graphene · Silver nanoparticles (AgNPs)

✉ Gazala Praveen
ghazala.prvn@gmail.com

¹ Department of Chemistry, SSV College, Hapur, Chaudhary Charan Singh University, Meerut, U.P., India

² Department of Chemistry, Haflong Government College, Dima Hasao 788819, Assam, India