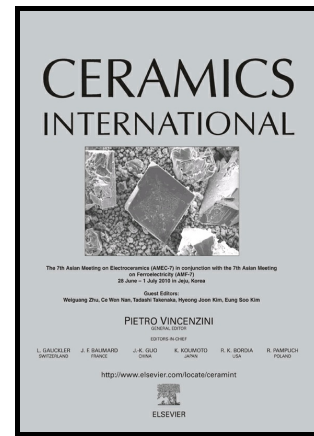


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Reduced graphene oxide and ZnO decorated graphene for biomedical applications

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ABSTRACT

The ability of graphene-based materials to enhance the conventional antibiotic resistance is well known and researchers have been interested in improving their antibacterial activity. The reduction of graphene oxide by eco-friendly reducing agents is of great interest on the basis of environmental and human health aspects. Herein we report the synthesis of two forms of graphene derivatives namely, reduced graphene oxide (RGO) through reduction using potato starch and zinc oxide decorated RGO (ZnO-RGO). In the case of ZnO-RGO, the reduction of graphene oxide and the conversion of ZnO to nano ZnO occur simultaneously. The characterization of all the graphene based materials and nanocomposites developed were carried out using FT-IR, XRD, Raman spectra and TEM techniques. The antibacterial activity of these modified materials against *E. coli* was also studied by well diffusion method. Our results show that ZnO-RGO is more efficient than RGO in their antibacterial properties which we attribute to the synergistic

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