

## Aqueous Radical Polymerization of Biopolymer Graphene Oxide Based Composites as Candidate Materials for Biomedical Applications

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**Abstract:** Functionalized graphene oxide (GO) is prepared by grafting biopolymer poly(methacryloyl beta-alanine) (PMBA) through Radical Polymerization in aqueous solution at 65°C for 24 h by using biocompatible initiator AAPH. Graphene was previously modified with Hummer's method to get functionalized epoxide, hydroxyl and carboxyl groups on its surface. GO was then modified through esterification with amine precursor to get  $-NH_2$  tails and amine alkylation method to have  $-C=C$  tails. Composite of GO-PMBA was characterized by TGA, Elemental analysis, FT-IR and XPS spectroscopy. GO-PMBA composite has potential biomedical applications such as for drug delivery of water-insoluble drug and antibacterial applications.

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