

An Investigation on Viscoelastic and Electrical Properties of Biopolymer-Based Composites

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Abstract : It is known that Chitosan, as a natural polymer, has many excellent properties such as biocompatibility, biodegradability and nontoxicity. Besides it has some limitations such as poor solubility in water and low conductivity in electrical devices and sensor applications. In order to improve electrical conductivity properties graphene loading was conducted into chitosan. For this aim, chitosan solution was prepared in acidic condition and Graphene at different ratios was mixed with chitosan solution by the help of homogenizator. After film formation electrical conductivity values of chitosan and graphene loaded chitosan were determined. After graphene loading into chitosan, solution significant increases in surface resistivity value of chitosan were observed. Besides variations on viscoelastic properties with graphene loading was determined by dynamic mechanical analysis. Storage and Loss moduli were obtained for chitosan and graphene loaded chitosan samples.

Keywords : chitosan, graphene, viscoelastic properties, electrical conductivity

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