Enhanced mechanical properties of chitosan/EDTA-GO nanocomposites thin films

ABSTRACT

Nanocomposite thin films of chitosan/graphene oxide (CS/GO) and chitosan/ EDTA-GO (CS/EDTA-GO) were prepared by environmental friendly method and the properties were compared. The experimental results showed fine dispersion of GO and EDTA-GO in CS matrix and some interaction occur between the filler and the CS matrix that leads to better distribution of stress transfer. At 0.5 wt. %, both CS/GO and CS/EDTA-GO experienced maximum tensile stress by 51 and 71% compared with CS. Moreover, the elongation at break for both nanocomposites increases and the amount of filler increases.

Keyword: Chitosan; Functionalized graphene oxide; Graphene oxide; Nancomposite thin films