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Development of Novel Biopolymer/Synthetic-Polymer/Iron Oxide Nanocomposites MARLETH MENA MONTOYA, SUGEHEIDY CARRANZA, MOISÉS HINOJOSA, VIRGILIO GONZÁLEZ, FIME-UANL — In this work we report the successful development of a family of magnetic nanocomposites based on chitosan or/and polyamide 6 matrix with dispersed iron oxide nanoparticles synthesized by chemical co-precipitation. The iron oxide contents varied from 5 up to 23 wt%, the nanocomposites were studied by FTIR, UV-vis, TGA, XRD, TEM and magnetometry. The FTIR analysis demonstrates an interaction between the amide group of the polyamide 6 and the ceramic material. In formic acid, the nanocomposites absorb in the UV-Vis range, and the magnitude of the band gap (optical), calculated using the band of higher wavelength, is between 2.16 and 2.19 eV. In nanocomposites with chitosan/polyamide 6 matrix the developed morphologies are spherulites of polyamide 6 surrounded by chitosan, with the iron oxide particles presumably in the form of ferrihidryte. The measured magnetic properties revealed a superparamagnetic character on the studied specimens.

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