Mechanical Properties of Gelatin Reinforced with Nanocellulose

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Organic rodlike cellulose nanocrystals extracted from sisal fibers and inorganic montmorillonite based on silicate layers were employed to develop bionanocomposites based on gelatin matrix. Bionanocomposites with cellulose nanocrystal, montmorillonite and both nanoreinforcements combined were characterized by Fourier transform infrared spectroscopy, thermogravimetric analysis and differential scanning calorimetry.
Tensile properties values were determined to study the influence of the addition of nanoreinforcements, different in nature, to gelatin matrix. Bionanocomposites with montmorillonite improved tensile strength but systems reinforced with nanocellulose showed lower tensile strength than neat gelatin ones.

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References

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Figures

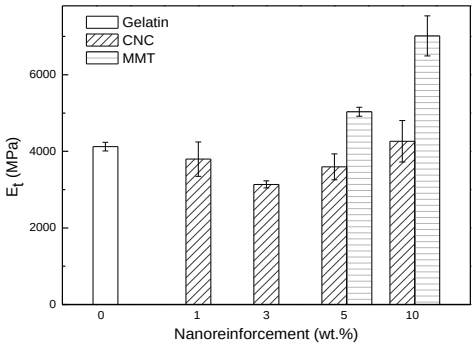

Figure 1: Tensile modulus of composites.

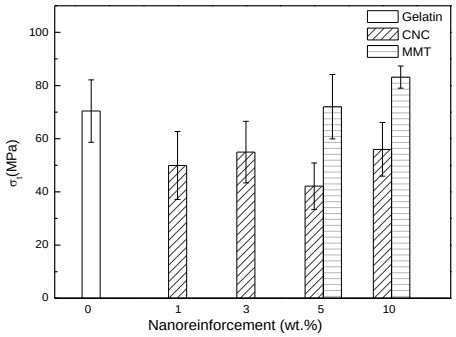

Figure 2: Tensile modulus of composites.