



Claudia Ponce

Mexican Institute of Petroleum, Mexico

Polyvinyl alcohol films reinforced with functionalized cellulose nanoparticles

Nanocellulose is a widely studied material which has been used to reinforce different materials and polymers such as polyvinyl alcohol (PVA). Cellulose has many amorphous zones which were useful for functionalization; therefore, reinforcing polymer films with this material will lead to better mechanical properties in them. The objective of the present work was to obtain and functionalize cellulose nanoparticles to incorporate them into PVA films to improve mechanical properties and for a possible use in the food industry. There were 4 studied samples, PVA, PVA-R (PVA/Congo red), PVA-C (PVA/cellulose) and PVA-CR (PVA/cellulose/Congo red). Films containing Congo red and PVA had very good mechanical properties giving the Congo red a cross linking property that has not been studied yet and that was corroborated with

other studies such as FTIR and XRD. Also, the addition of different components gives a better structure, which can be observed in the roughness parameters obtained by AFM (Ra between 1.86 and 17.2). The films showed a change in color when adding drops of lactic acid, suggesting that the Congo red is not covalently linked in the PVA matrix and it is not losing the property as pH indicator.

Speaker Biography

Claudia Ponce has completed her PhD at the age of 29 at Instituto Politécnico Nacional, Mexico City. She is a professor at Mexican Republic University and co-works with the National Institute of Petroleum. She has a lot of experience on Transmission Electron Microscopy (TEM) on biological materials.

e: ericka1a@gmail.com



Notes: