World Academy of Science, Engineering and Technology
International Journal of Agricultural and Biosystems Engineering
Vol:8, No:11, 2014

Crystalline Structure of Starch Based Nano Composites

Authors : Farid Amidi Fazli, Afshin Babazadeh, Farnaz Amidi Fazli

Abstract : In contrast with literal meaning of nano, researchers have been achieving mega adventures in this area and every day more nanomaterials are being introduced to the market. After long time application of fossil-based plastics, nowadays accumulation of their waste seems to be a big problem to the environment. On the other hand, mankind has more attention to safety and living environment. Replacing common plastic packaging materials with degradable ones that degrade faster and convert to non-dangerous components like water and carbon dioxide have more attractions; these new materials are based on renewable and inexpensive sources of starch and cellulose. However, the functional properties of them do not suitable for packaging. At this point, nanotechnology has an important role. Utilizing of nanomaterials in polymer structure will improve mechanical and physical properties of them; nanocrystalline cellulose (NCC) has this ability. This work has employed a chemical method to produce NCC and starch bio nanocomposite containing NCC. X-Ray Diffraction technique has characterized the obtained materials. Results showed that applied method is a suitable one as well as applicable one to NCC production.

Keywords : biofilm, cellulose, nanocomposite, starch
Conference Title : ICFAE 2014 : International Conference on Food and Agricultural Engineering
Conference Location : Cape Town, South Africa
Conference Dates : November 20-21, 2014