

## Abstract

Hemicellulose has displayed significant potential in food packaging applications because of its high biodegradability. But, its strong hydrophilicity is responsible for poor moisture resistance and minimizes its widespread applications. To discourse this problem, herein a citric acid being an esterifying agent was integrated with hemicellulose to make a crosslinking structure by esterification reaction. Prior to film formation, hemicellulose was extracted via alkaline extraction method and actual yield was 18 gram. The citric acid modified hemicellulose film indicated high contact angle of  $82.6^\circ$  as compared to  $40.5^\circ$  for unmodified film, signifying that hydrophobicity of hemicellulose had been enhanced considerably. Several tests had performed with 20% citric acid modified hemicellulose film and results were compared with literature values. Moreover, tensile strength, breaking force and elongation at break also examined and the outcomes were  $8.80 \text{ N/mm}^2$ ,  $8.80 \text{ N}$ , and 353% respectively. Fourier infrared spectroscopy analyzer was used to identify chemical functional groups of hemicellulose and spectrum was obtained in range of  $4000$  to  $500 \text{ cm}^{-1}$ .