

JOINT EVENT ON

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## Structure and thermal degradation of pineapple leaf cellulose after treatment

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Cellulose fibers were isolated from grinded decorticated pineapple leaf biomass using a facile conventional extraction method and sodium hydroxide as a catalyst in ethanol-water extracting medium. The structures of the treated fibers were investigated using FTIR, XRD and SEM techniques. FTIR results indicated that non-cellulosic components were effectively eliminated when a certain amount of sodium hydroxide was presented in the extracting medium and a certain time employed. As a result, higher purity cellulose fibers were obtained. The crystalline structures of the fibers were observed by XRD and the crystallinity indexes were calculated using the peak height method. It was found that the crystallinity index of a treated fiber was almost 20% higher than that of the untreated one. In addition, SEM images revealed that the treated fibers were defibrillated from fiber bundles. Furthermore, thermal degradation behaviour characterized by thermogravimetry showed that the temperature at the maximum weight loss of a treated fiber was closed to that of a hydrogen peroxide bleached kraft cellulose fiber. The cellulose fiber after physical and chemical treatment can be used as reinforcement in green biopolymer materials such as PLA.

### Biography

Siriwan Leesirisan has worked as a scientist in Department of Science Service, Thailand since 1993. She was awarded her PhD from Institute of Polymer Technology and Materials Engineering, IPTME (now Department of Materials), Loughborough University, United Kingdom. Her area of expertise is in mechanical and chemical characterization of plastic products. She is currently working on development of natural fiber composites.

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