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Nanofibrillated cellulose from tropical forest species

Latifah Jasmani Forest Research Institute Malaysia , Malaysia

Nanofibrillated cellulose is an organic polymer with dimension in nanoscale. It is usually extracted from wood through mechanical delamination action. It has been extensively studied for the last decade mainly because of its sustainability and renewability attribute and also due to its outstanding mechanical, optical and thermal properties. In this project, nanofibrillated cellulose (NFC) was produced from selected forest species locally known as Mahang gajah or its scientific name; Macaranga gigantea. Prior to NFC production, the usual pulping and bleaching regime were carried out on Mahang gajah sample that obtained from FRIM campus. Pre-treatment methods via enzyme and TEMPO-mediated oxidation was carried out on cellulose fibre before fibrillation through sonication. Sonication was applied on pre-treated fibre at varying amplitude and time. Upon successful production of NFC, it was evaluated using different analytical tools that include AFM, FTIR, XRD and TGA. NFC produced from Mahang gajah had crystallinity between 74.8 – 80.1% and had width between 9.5 to 26.1 nm.

Biography

Latifah has completed her PhD from University of Nottingham, United Kingdom. She is currently the Head of Pulp and Paper Branch in FRIM, a leading tropical forest research institute in Malaysia. She has published more than 40 technical papers.

latifah@frim.gov.my

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