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Efficient Retting of Natural Fibre Using Microbial Enzyme

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The global natural fibre composites market is forecast to grow 8.2% from 2015 to 2020. The major driver for the growth of this market is; The rise in demand for lightweight and environmentally sustainable composite materials in various applications, such as automotive, building & construction, and others. In this market, natural fibre (hemp, flax, jute, kenaf, and others) are the major raw materials used for producing natural fibre composites. Kenaf also known as *Hibiscus cannabinus* is an annual fibre plant closely related to cotton. The kenaf bast fibre found its application in many industries such as textile industry, automotive industries, structural and building materials and made into biocomposite consumer products. The process of separating the bast from the core by degrading the pectin rich middle lamella is known as retting. The traditional method of water retting requires a longer retting time and caused pollution while dew retting produced fibres with poor quality. Hence, there is a need to seek for an environmental-friendly approach to produce high-quality kenaf bastfibres. In this study, pectinolytic fungi were isolated from various sources and screened for their pectinase activity. A potential pectinase producing strain was chosen and identified as *Aspergillus fumigatus* R6 by amplification of the Internal Transcribed Spacer region. It was found the retting process using the enzyme has reduced the retting time from 3 weeks to 3 days. Kenaf bast fibres quality can improve by further optimisation of the enzyme formulation. *Aspergillus fumigatus* R6 pectinase enzyme shows potential to be used in kenaf bast bio retting process to produce strong and high quality kenaf long bast fibres.

Biography:

Wan Zuhainis Saad is an associate professor in Microbiology. Research activities include drug discoveries from thermophilic fungi and lactic acid bacteria, microbial enzymes technology in biopolymers and pulp and papers. She awarded three patents on isolation and preservation techniques of thermophilic fungi and enzyme for bioretting of kenaf. An Educational Technology enthusiast. Practices E-learning and active learning approach in enhancing students' engagement for effective and meaningful learning. Shortlisted for the QS Wharton Reimagine Education Award 2015 and 2016. QS Wharton Reimagine Education Awards Judge 2017. Awarded Vice-Chancellor Fellowship Award (Young Educator) 2012 and Vice-Chancellor Fellowship Award (Excellent Educator) 2016.