

Efficacy of *Aspergillus fumigatus* R6 pectinase in enzymatic retting of kenaf

ABSTRACT

Enzyme retting can be a viable alternative to water retting, which is the currently utilised method for extracting fibres from kenaf. The advantages of enzyme retting are its greater environmental friendliness, shorter retting time, and more controllable fibre quality. The objective of this study was to determine the efficacy of pectinase produced from locally isolated *Aspergillus fumigatus* R6 in kenaf retting. *A. fumigatus* R6 pectinase effectively separated the fibres from non-fibre components. Scanning electron micrographs showed that the surface of pectinase-treated kenaf bast fibres appeared to be smoother and finer. The degree of retting increased with incubation time. A retting time of 32 h produced good-quality kenaf bast fibres with high tensile strength (459 MPa). No significant differences were found between the tensile properties of kenaf bast fibres treated with *A. fumigatus* R6 pectinase-containing culture filtrate and other sources of commercial pectinase enzyme. Hence, it was concluded that *A. fumigatus* R6 pectinase was capable of retting kenaf effectively.

Keyword: Kenaf; Enzyme retting; Pectinase; High tensile strength