

Biomodification of Kenaf using white rot fungi.

ABSTRACT

White rot fungi can be used as a pretreatment of biomass to degrade lignin. It also alters the structure of the lignocellulosic matter, thus increasing its accessibility to enzymes able to convert polysaccharides into simple sugars. This study compares the ability of two species of white rot fungi, *Pycnoporus sanguineus* and *Oxyporus latemarginatus* FRIM 31, to degrade lignin in kenaf chips. The white rot fungi were originally isolated from the tropical forest in Malaysia. Kenaf chips were first inoculated with each fungus separately using corn steep liquor as a fungal growth promoter. The kenaf chips were inoculated with white rot fungus for a period of 1, 2, 4, 8 and 16 weeks, after which they were observed under the scanning electron microscope (SEM). Chemical analyses were conducted following TAPPI Standard Methods and Fourier Transmission Infra Red (FTIR). SEM observations showed evidence of fungal colonization. When calculating weight loss, both *P. sanguineus* and *O. latemarginatus* FRIM 31 showed the greatest reduction. Amounts by mass of cellulose, hemicelluloses, extractives, and lignin in the treated kenaf chips all were lowered. The results show that *O. latemarginatus* FRIM 31 had a greater ability to degrade lignin when compared to *P. sanguineus*.

Keyword: Delignification; Kenaf; Pretreatment; *Pycnoporus sanguineus*; *Oxyporus latemarginatus*.