



Turkish Journal of Agriculture and Forestry

Turkish Journal

of

Agriculture and Forestry

 [Keywords](#)
 [Authors](#)



agric@tubitak.gov.tr

[Scientific Journals Home Page](#)

Beneficial Effects of Fungal Treatment before Pulping and Bleaching of *Acacia mangium* and *Eucalyptus camaldulensis*

Md. Nazrul ISLAM¹, Md. Rezaul KARIM², Raimo O. MALINEN³

¹Forestry and Wood Technology Discipline, Khulna University, Khulna - 9208, BANGLADESH

²Chittagong University of Engineering and Technology, Chittagong, BANGLADESH

³Pulp and Paper Technology, Asian Institute of Technology, P. O. Box 4, Klongluang, Pathumthani 12120, THAILAND

Abstract: Three white-rot fungi (*Ceriporiopsis subvermispora* (Pilát) Gilb. & Ryvarden, *Phanerochate chrysosporium* Burds, and *Trametes (Coriolus) versicolor* (L.) Lloyd) were tested for their ability to modify/degrade lignin in cooking and bleaching. Both chips and pulps of *Acacia mangium* Willd. and *Eucalyptus camaldulensis* Dehn. were pretreated with these white-rot fungi for different time periods (8, 12, and 16 days for chips; and 4, 8, and 12 days for pulps). For chip pretreatment, Kappa number decreased with the increase of fungal treatment time, and the maximum reduction in Kappa number was 28% and 25% for acacia and eucalyptus, respectively, after 16 days of fungi inoculation. The variation in Kappa reduction was also found for different fungi species when inoculated in the same wood species. Fungi treated pulps were also easy to delignify in oxygen delignification stage compared to the control pulp without serious viscosity loss. In bleaching, the final brightness was higher in the case of FD_0ED_1 bleached pulps (as much as 8 ISO units) than OD_0ED_1 bleached pulps for both species. By FD_0ED_1 bleaching sequence, it was also possible to reach the full brightness of pulp. Hand sheet properties were also improved significantly by fungi treatment prior to bleaching. Strength properties of hand sheets increased up to 20% by fungi treatment. Considering all the pulping and papermaking properties, the performance of *C. subvermispora* was better compared to other fungi tested, and the response of fungi to eucalyptus was better compared to acacia.

Key Words: Fungi, biopulping, biobleaching, acacia, eucalyptus, inoculation

Turk. J. Agric. For., **32**, (2008), 331-338.

Full text: [pdf](#)

Other articles published in the same issue: [Turk. J. Agric. For., vol.32, iss.4.](#)