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FUNGI AND THEIR APPLICATION ON PULP AND PAPER INDUSTRY

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ABSTRACT: Pulp and paper industry is a factory producing pulp, material for paper. Pulp can be got from fiber of wood or from another source of fiber like cotton. Wood is the common raw material used to get fiber for pulp. Pulp and paper industry process use many chemicals from cooking until bleaching stages. Residual of these chemicals give negative effect for environmental because toxic and carcinogenic. Especially in Indonesia, pulp and paper industry still use chlorine and chlorine dioxide on bleaching stages. These chemical can form chlorofuran is a dangerous chemical compound for environment. Study of fungi and their enzymes on pulp and paper industry was performed with the goal of imitating the wood decaying action in nature. The enzymes of the fungi can use for *biopulping*, *biobleaching*, and bioremediation. The approaching use enzymes for biobleaching have been done followed since early 1980s, when lignin degradation by action white decay fungi was studied and characterized of these fungi was intensified. Hunt *et al.*, 2002 found that *Ceriporiopsis subvermispota* grow on wood chips for 10-15 days and the refining requires 30-40 % less energy and the sheet strength properties were improved. Kondo *et al.*, 1994 found that fungus strain YK-624 was isolated from rotted wood can increase brightness on pulp 21 points in P-filter system. Meanwhile, Katagiri *et al.*, 1995 found increasing brightness 15 and 30 points after 5 days treatment on solid-state fermentation system with *Trametes versicolor* and *Phanerochaete chrysosporium*, respectively and decreasing the kappa number with increasing brightness.

KEYWORDS: Fungi, Biobleaching, Mangan peroxidase, laccase, Lignin peroxidase