ONLINE ISSN : 1880-7577
PRINT ISSN : 0021-4795

Mokuzai Gakkaishi
Vol. 54 (2008) , No. 1 p.33-38

Chemical Characteristics and Kraft Pulping Response of *Phyllostachys pubescens* Stems

Comparison with kenaf bast, Japanese softwood and fast-growing hardwood

Guangfan Jin[1)], Shiho Takahashi[1)], Akiko Nakagawa-izumi[1)] and Hiroshi Ohi[1)]

1) Graduate School of Life and Environmental Sciences, University of Tsukuba, Tsukuba 305-8572, Japan

(Received May 7, 2007)
(Accepted September 3, 2007)

Abstract: Recently, it has been reported that bamboo is sometimes used as a raw material in some of kraft pulp mills. However, there are few findings on relationships between chemical features and cooking or bleaching response. In this study, *Phyllostachys pubescens* which was obtained in Ibaraki prefecture was chemically analyzed, and kraft-cooked and bleached by totally chlorine-free (TCF) bleaching. In addition, *P. pubescens* stems were compared with *Hibiscus cannabinus* bast, *Cryptomeria japonica* D. Don wood and *Eucalyptus grandis* wood. The lignin content of *P. pubescens* stems was similar to that of *E. grandis* wood, and the xylan content of *P. pubescens* was high compared with the other materials. In obtaining pulps with given kappa numbers, the delignification response of *P. pubescens* was equal to that of *E. grandis* and better than that of *H. cannabinus* bast. However, the pulp yield of *P. pubescens* was lower than that of *E. gradis* or *H. cannabinus* bast, and was equal to that of *C. japonica*. The hexenuronic acid ontent of *P. pubescens* kraft pulp was lower than that of *H. cannabinus* bast or *E. grandis*. The brightness of unbleached pulp prepared from *P. pubescens* was far higher than that from *H. cannabinus* and *E. grandis*. The *P. pubescens* pulp gave higher brightness after oxygen bleaching than the *H. cannabinus* or *E. grandis* pulps.

Keywords: bamboo, carbohydrates, lignin, kraft pulping, kappa number

To cite this article:

Guangfan Jin, Shiho Takahashi, Akiko Nakagawa-izumi and Hiroshi Ohi: Mokuzai Gakkaishi Vol. 54, No. 1, 33-38 (2008) .

doi:10.2488/jwrs.54.33

JOI JST.JSTAGE/jwrs/54.33