Abstracts

E. MAEKAWA: **Effect of Dimethyl Sulfoxide as the Solvent of Cell Wall Polysaccharides**, Nippon Nōgeikagaku Kaishi, **48**(1), 75 (1974).

Water, DMSO (dimethyl sulfoxide) and alkaline solution were used as the solvents of polysaccharides from a preparative meal of bamboo shoot. Starch and protein which were concomitant on extraction with the individual solvents were removed by enzymic hydrolysis with enzyme preparations such as α-amylase and protease, respectively. Thus, the yields and properties of the resulting water-soluble polysaccharides were compared with each other. The result showed that DMSO gave water-soluble polysaccharides in much higher yield comparable to extraction with water under a mild condition. Therefore, it was pointed out in a Note that DMSO was useful as a solvent of water-soluble polysaccharides in plant cell wall.

E. MAEKAWA and K. KITAO: **The Structure of an Arabinogalactan Isolated from Bamboo Shoot**, Agr. Biol. Chem., **38**(1), 227 (1974).

In order to elucidate the structure of water-soluble polysaccharides other than starch in bamboo shoot which were obtained by isolation and fractionation from bamboo shoot, methylation analysis and the Smith degradation were attempted in parallel. Consequently, an arabinogalactan of these polysaccharides gave a structural evidence consisting of 1, 3-linked β-D-galactopyranosyl residues. This short communication is concerned with the structural evidence of the polysaccharide isolated from bamboo shoot.

H. SASAKI: **Ahesive Joints of Wood with Epoxy Resins and Fracture Mechanics**, Technology on Adhesion, Cohesion and Sealing, **18**(4), 172 (1974). (in Japanese)

Little shrinkage in curing of epoxy resins and its wide ranged frexibility bring versatile use in adhesive bond. This review concerns with the recent advance of the fracture research in wood adhesive bonds with epoxy resin. Fracture Mechanics theory was introduced to determine the criteria of fracture of the bonds and the remarkable effect of flexibility on the fracture energy was shown in terms of the Fracture Toughness. Applications of the Fracture Toughness on designing of wood structural members with resin bonded parts such as lap-jointed ties and beams having notches reinfoced with epoxy resin were presented.

M. MASUDA, T. MAKU and Y. YAMAURA: **Radiant Heating in the Living Space**, Mokuzai Kogyo (Wood Industry), **29**, 306 (1974).

Effect of radiant heating on the human body was investigated by measuring the

temperature of the face skin, the perspiration, motion of the body, operation efficiency and the questionaire to the subjects. The variables were the surface materials, direction of heating, surface temperature and age of the subjects. Emissivity of various interior materials were measured and the effect of the surface treatment (painting, veneer-overlaying) were also observed. It is concluded from the experiment that radiation from large area of the walls and the floor whose surface temperature is not high (for example 25~30°C) is the best heating for the human body.

T. YAMADA, K. SUMIYA, M. NORIMOTO, T. NOMURA, Y. HASEGAWA, T. OHGAMA, T. AOKI and T. TANAKA: **Short Manual on Wood Mechanics X**, Wood Research Review, No. 8, 45 (1974).

M. NORIMOTO and T. YAMADA: **Humidity Conditioning by Wooden Materials**, Wood Industry, **29**, 301 (1974).

The function of indoor humidity conditioning by sixteen kinds of materials for interior use were estimated quantitatively with the aid of the newly designed apparatus. The hygroscopic properties of these materials were classified into four groups and the wooden materials excelled generally the others in the function of humidity conditioning. The same results were also obtained from the observation on the indoor humidity of the model houses.

Y. HASEGAWA and T. YAMADA: **The Changes of Stress Relaxation Curves and Structure of Pine Seedlings**, Mokuzai Gakkaishi, **20**, 98 (1974).

Tensile stress relaxation tests of lively pine hypocotyls grown for about one and three weeks after germination were carried out. The difference of the relaxation behavior between these two kinds of hypocotyls were clarified from a view of degree of crystallinity in the short-time region, and from a view of lignin content in the long-time region.

And also the younger hypocotyls were tested after boiling treatment with MeOH.

T. OHGAMA and T. YAMADA: **Elastic Modulus of Porous Material**, J. Japan Wood Res. Soc., **20**, 166 (1974).

In this paper, the relation between the geometric features at macroscopic level and the viscoelastic properties of wood in the transverse direction is discussed. As described in the previous paper, the contribution of the porous structures such as geometry and distribution of cells to modulus of wood can be evaluated by the two factors: volume fraction of wood substance θ and form factor "n".

On the basis of this evaluation, the contribution of bending and shearing effects to the numerical value of n is estimated qualitatively. The experiment is carried out on

the two kinds of the simplified model structures with circular holes arrayed quadrately and staggeringly and the numerical value of n is determined by the static tensile tests on these models. The results obtained are shown in Fig. 6 and summarized in Table 1.

From these results it is evident that the array of holes is the most important factor in elastic anisotropy of wood.

K. NISHIMOTO: As an Attendant of Round-table Talk- "**Termite Information in Europe and America**", SHIROARI, No. 20, 2 (1974).

K. NISHIMOTO: **External Anatomy of Termite with Scanning Electron Microscope,** SHIROARI, No. 20, 24 (1974).

The present account of the external morphology of the Isoptera has only touched upon the general form and more conspicuous differences and similarities between the various groups and the different castes.

This report contains 30 photographs on the three dimensional structure of head, legs and abdomen in the soldiers and workers of *Coptotermes formosanus*. It is purpose to define the relationship between the function and morphology of the Isoptera.

K. KONISHI, Y. INOUE and T. HIGUCHI: **Decomposition of Lignin by *Coriolus versicolor* V, Formation of Carboxyl Groups in the Lignin Treated with Fungal Laccase**, Mokuzai Gakkaishi, **20**(1), 26 (1974).

A previous paper established that the solubilization of MWL into water by laccase-treatment is mainly due to the formation of carboxyl groups in the lignin. In the present investigation possible distribution of the carboxyl groups in the enzyme treated MWL was examined, and it was revealed indirectly that a part of the terminal primary alcohol groups of the lignin side chains were oxidized to carboxyl groups and further supposed that the side chains with α-carbonyl groups coupled with the neighbouring guaiacylpropane units to form glyceric acid-α-aryl ether groups.

A. SATO: **Travels in New Ireland,** The Tropical Forestry, No. 33, 10 (July, 1974). (in Japanese)

This is a travel report of New Ireland Island (Papua New Guinea) which is located east side of Bismark Sea for three weeks in July, 1973.

Major parts of the report is filled with items about trees and bushes.

The 27th Public Lecture held by Wood Research Institute (May 17th, 1974, Osaka)

A. ENOKI: Pho to-chemical Dimerization of Resin Acid.

A. SATO: Chemistry of Tropical Wood.

T. HIGUCHI: Evolution of Lignin.