**IAWA Journal - Volume 14(2)**

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| **Author(s):** | A. P. Singh; T. Nilsson; G. F. Daniel |
| **Title:** | **Alstonia Scholaris Vestures are Resistant to Degradation by Tunnelling Bacteria** |
| **Source:** | IAWA Journal, Volume 14, Issue 2 |
| **Publication Year:** | 1993 |
| **Pages:** | 119-126 |
| **Keywords:** | vestures; wood ultrastructure; tunnelling bacteria; Alstonia scholaris wood |
| **Abstract:** | Electron microscopic examination of vessels and fibre-tracheids of Alstonia scholaris exposed to tunneIIing bacteria (TB) in liquid cuItures showed degradation of aU areas of the secondary waU incIuding the highly lignified middle lameUa in advanced stages of attack. However, vestured pit membranes and vestures appeared to be resistant to degradation by TB even when aU other waU areas in A. scholaris wood ceIIs were severely degraded. The size comparison indicated vestures to be considerably smaIIer than TB, and we suspect that this may be the primary reason why vestures in A. scholaris wood were resistant to degradation. |
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| **Author(s):** | W. Wayne Wilcox |
| **Title:** | **Comparative Morphology of Early Stages of Brown-Rot Wood Decay** |
| **Source:** | IAWA Journal, Volume 14, Issue 2 |
| **Publication Year:** | 1993 |
| **Pages:** | 127-138 |
| **Keywords:** | Gloeophyllum trabeum; Abies concolor; Poria placenta; Pseudotsuga menziesii; diagnosis; wood decay; early decay; light microscopy; scanning electron microscopy |
| **Abstract:** | Early stages of decay by two brown-rot fungi in two woods were studied by light and scanning electron microscopy. The earliest diagnostic feature to appear was hyphae in the earlywood lumina. The earliest effect on cell walls was the loss of birefringence in the earlywood; Poria placenta (syn. Postia placenta) caused this loss at the earliest stage of decay observed, in both Douglas-fir and white fir, while Gloeophyllum trabeum caused significant weight loss before loss of birefringence was visible. Attack on the latewood progressed from the earlywood, and was different in pattern among the wood/fungus combinations. Hyphal and bore hole diameter increased throughout the early progression of decay and would be useful in evaluating the stage of decay, if the starting diameter of hyphae could be determined. Separation between cells was not observed until moderate stages of decay and, therefore, was not useful in diagnosing early stages of decay. |
| **DOI:** | [10.1163/22941932-90001306](http://dx.doi.org/10.1163/22941932-90001306) |

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| **Author(s):** | Nobuo Yoshizawa; Naomi Watanabe; Sbinso Yokota; Tosbinaga Idei |
| **Title:** | **Distribution of Guaiacyl and Syringyl Lignins in Normal and Compression Wood of Buxus Microphylla Var. Insularis Nakai** |
| **Source:** | IAWA Journal, Volume 14, Issue 2 |
| **Publication Year:** | 1993 |
| **Pages:** | 139-151 |
| **Keywords:** | Mäule reaction; compression wood; guaiacyl lignin; ultraviolet microspectrophotometry; syringyl lignin; Wiesner reaction; Buxus microphylla; Betula ermani |
| **Abstract:** | The distribution of guaiacyl and syringyl lignins in the secondary xylem tissues of normal and compression wood of Buxus microphylla var. insularis Nakai was examined by visible light (VL) microspectrophotometry coupled with the Mäule and Wiesner colour reactions and by UV -microspectrophotometry, and compared with normal wood of Betula ermani Cham. Buxus formed compression wood on the lower side of the leaning sterns, and the secondary walls of the vessels and fibre-tracheids showed excessive lignification, resembling the S2 (L) layer of compression wood tracheids in gymnosperms.In normal wood of both species, the Mäule colour reaction indicated that in Betula the secondary walls of fibres contain larger amounts of syringyl units in the lignins than other tissues, and that in Buxus the secondary walls of fibre-tracheids contain both syringyl and guaiacyl units. The vessel walls of both speeies contained higher amounts of guaiacyl units. Heterogeneity of the syringyl-Jignin distribution was found in the secondary walls of Buxus fibre-tracheids.In compression wood of Buxus, on the other hand, the spectra of the secondary walls of the vessels and fibretracheids after the Mäule reaction showed low absorbances compared with the normal wood, whereas, after the Wiesner reaction, their secondary walls gave high absorbances. In addition, the UV -absorption maximum of the secondary fibre walls shifted from 274 nm to 279 nrn, and the UV -absorbances of the vessei and fibre-tracheid walls greatly increased in compression wood. The results obtained in the present study demonstrated that in normal Buxus wood the secondary walls of the vessels and fibre-tracheids contain both guaiacyl and syringyl units, though the syringyl unit is a rninor constituent in the vessel walls, and that both cell types increase their contents of guaiacyl units, especially in the outer parts of the secondary walls during their changes from normal wood to compression wood. The present study also suggested that the Wiesner reaction may be used for examining the content of lignin and the proportion of guaiacyl to syringyl units in lignins. |
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| **Author(s):** | E. A. Wheeler |
| **Title:** | **Methods in Lignin Chemistry. S.Y. Lin ' C.W. Dence (eds.), 578 pp., illus., 1992. Springer Series in Wood Science. Springer Verlag, Berlin, Heidelberg, etc. ISBN 3-540- 50295-5. Price DM 480.00 (hardcover).** |
| **Source:** | IAWA Journal, Volume 14, Issue 2 |
| **Publication Year:** | 1993 |
| **Pages:** | 152-152 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001308](http://dx.doi.org/10.1163/22941932-90001308) |

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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Population Genetics of Forest Trees. W.T. Adams, S.H. Strauss, D.L. Copes and A. R. Griffin (eds.), 420 pp., illus., 1992. Kluwer Academic Publishers, Dordrecht. ISBN 07-923-185-79. Price US$ 165.00 or Dfl. 250.00 (hardback).** |
| **Source:** | IAWA Journal, Volume 14, Issue 2 |
| **Publication Year:** | 1993 |
| **Pages:** | 152-152 |
| **Keywords:** |  |
| **Abstract:** |  |
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| **Author(s):** | R.P. Butterfield; R.P. Crook; R. Adams; R. Morris |
| **Title:** | **Radial Variation in Wood Specific Gravity, Fibre Length and Vessel Area for Two Central American Hardwoods: Hyeronima Alchorneoides and Vochysia Guatemalensis: Natural and Plantation-Grown Trees** |
| **Source:** | IAWA Journal, Volume 14, Issue 2 |
| **Publication Year:** | 1993 |
| **Pages:** | 153-161 |
| **Keywords:** | fibre length; specific gravity; juvenile wood; tropical hardwoods; Vochysia guatemalensis; V. hondurensis; plantations; Hyeronima alchorneoides (Hieronyma alchorneoides) |
| **Abstract:** | Natural-grown and young (5.5 year old) plantation-grown trees were sampled for two Central American hardwood species: Hyeronima alchorneoides and Vochysia guatemalensis in the Atlantic lowlands of Costa Rica. Increment cores extracted at a height of 1.3 m from trees were divided into 1cm segments from pith to bark. Basic specific gravity was calculated for each segment. Using the same cores, fibre length was measured from macerations for five natural and plantation-grown trees of each species. Number of vessels/mm2 and vessel tangential diameter were measured from segment cross sections for five natural-grown trees of each species. |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Wood Anatomy News** |
| **Source:** | IAWA Journal, Volume 14, Issue 2 |
| **Publication Year:** | 1993 |
| **Pages:** | 162-162 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001311](http://dx.doi.org/10.1163/22941932-90001311) |

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| **Author(s):** | J. R. Barnett; P. Cooper; Lynda J. Bonner |
| **Title:** | **The Protective Layer as an Extension of the Apoplast** |
| **Source:** | IAWA Journal, Volume 14, Issue 2 |
| **Publication Year:** | 1993 |
| **Pages:** | 163-171 |
| **Keywords:** | cell wall; Apoplastic transport; Quercus cerris; protective layer; xylem parenchyma |
| **Abstract:** | The protective layer between the cell wall and plasmalemma of xylem parenchyma cells has variously been suggested to be involved in protection of the protoplast from attack by autolytic enzymes from neighbouring, dying cells, tylose formation, deep supercooling of xylem, and strengthening of the pit. None of these ideas has universal application to all species in which parenchyma cells possess a protective layer. It is proposed instead, that the protective layer is primarily laid down in order to preserve apoplastic continuity around the protoplast of a lignified cell, bringing the entire plasmalemma surface, and not just that part of it in contact with the porous pit membrane, into contact with the apoplast. If this is so, then other functions may be coincidental, or have arisen secondarily. |
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| **Author(s):** | W.E. Hillis |
| **Title:** | **Wood Anatomy News** |
| **Source:** | IAWA Journal, Volume 14, Issue 2 |
| **Publication Year:** | 1993 |
| **Pages:** | 172-172 |
| **Keywords:** |  |
| **Abstract:** |  |
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| **Author(s):** | John W. Malan; Abraham E. van Wyk |
| **Title:** | **Bark Structure and Preferential Bark Utilisation by the African Elephant** |
| **Source:** | IAWA Journal, Volume 14, Issue 2 |
| **Publication Year:** | 1993 |
| **Pages:** | 173-185 |
| **Keywords:** | bark anatomy; gelatinous fibres; sclereids; mechanical properties; African elephant; debarking |
| **Abstract:** | Bark fracture properties are thought to influence the debarking of selected trees by the African elephant. This hypo thesis was tested for large riverine tree species in the Northern Tuli Game Reserve, Botswana. An index of bark breakage strength and pliability of secondary phloem tissue was compiled for 11 common riverine species, and the bark anatomy of these species was investigated to determine relative fibrosity. The majority of species preferred by elephants have strong and pliable barks, associated with a high proportion of fibres. However, not all preferred species have these characteristics, which indicates that factors other than bark fracture properties affect species preference. Bark structure influences the way pieces of bark are stripped from a tree trunk during debarking. It is hoped that this paper will stimulate further studies on the effects of bark structure on the preferential feeding behaviour of the African elephant. |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Association Affairs** |
| **Source:** | IAWA Journal, Volume 14, Issue 2 |
| **Publication Year:** | 1993 |
| **Pages:** | 186-186 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001315](http://dx.doi.org/10.1163/22941932-90001315) |

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| **Author(s):** | Carlos Alejandro Norverto |
| **Title:** | **Perforated Ray Cells and Primary Wall Remnants in Vessel Element Perfortations of Symplocos Uniflora** |
| **Source:** | IAWA Journal, Volume 14, Issue 2 |
| **Publication Year:** | 1993 |
| **Pages:** | 187-190 |
| **Keywords:** | perforated ray cells; Symplocaceae; Symplocos uniflora; Vessel elements |
| **Abstract:** | The presence of perforated ray cells and remnant strands of primary wall material in perforations of scalariform perforation plate is described in Symplocaceae for the first time. |
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| **Author(s):** | M.N.B. Nair |
| **Title:** | **Structure of Stem and Cambial Variant in Spatholobus Roxburgii (Leguminosae)** |
| **Source:** | IAWA Journal, Volume 14, Issue 2 |
| **Publication Year:** | 1993 |
| **Pages:** | 191-204 |
| **Keywords:** | Leguminosae; Spatholobus; vestured pits; perforated ray cells; successive cambia; liana; Cambial variant |
| **Abstract:** | The stern of Spatholobus roxburghii, a tropicalliana, has alternating layers of xylem and phloem as a result of formation and activity of successive cambia. Successive cambial rings are developed by dedifferentiation of groups of parenchyma cells outside the discontinuous band of sclereid-fibres. The sclereid- fibre band is formed by the development of sclereids between the primary bark fibres. Each successive cambium first produces a layer of sclereid-fibres which separates the vascular tissue produced by one cambial ring from the other. After secondary growth, the epidermis is replaced by periderm. In the older stern phelloderm contributes to the formation of new cambiallayers. Secondary phloem has sieve tube members; companion cells, phloem parenchyma, phloem fibres and secretory cells. The wood shows a tendency towards ring-porosity only in the first xylem layer. The subsequent layers are diffuseporous. The vessels are wide and narrow. Perforated ray cells or radial vessels are frequent in the wood and probably help in vertical conduction by interconnecting vessel endings. In this scandent species parenchyma cells are abundant. It is inferred that they help the vessel segments to remain undamaged when the woody stern twists around supports. |
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| **Author(s):** | W. John Hayden; Mark P. Simmons; Linda J. Swanson |
| **Title:** | **Wood Anatomy of Amanoa (Euphorbiaceae)** |
| **Source:** | IAWA Journal, Volume 14, Issue 2 |
| **Publication Year:** | 1993 |
| **Pages:** | 205-213 |
| **Keywords:** | Phyllanthoideae; wood anatomy; Euphorbiaceae; Amanoa |
| **Abstract:** | Wood anatomy of 29 specimens of seven species of Amanoa from tropieal Africa, South America, and the Caribbean is described. The wood is diffuse-porous with most vessels in short radial multiples. Vessel elements are notably long, have simple perforation plates and smalI, alternate intervessel pits; tyloses are present in heartwood. Libriform wood fibres bear thick walls. Axial parenchyma distribution is diffuse and diffuse-in-aggregates. Chambered crystalliferous axial parenchyma is common. Rays are heterocellular, narrow, and very tal!. The species examined, all from moist lowland forests, have similar wood structure. Wood of Amanoa resembles that of other primitive Euphorbiaceae. |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **IAWA Journal** |
| **Source:** | IAWA Journal, Volume 14, Issue 2 |
| **Publication Year:** | 1993 |
| **Pages:** | 214-214 |
| **Keywords:** |  |
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