**IAWA Journal - Volume 18(2)**

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| **Author(s):** | Osvaldo Encinas; Geoffrey Daniel |
| **Title:** | **Degradation of the Gelatinous Layer in Aspen and Rubberwood by the Blue Stain Fungus Lasiodiplodia Theobromae** |
| **Source:** | IAWA Journal, Volume 18, Issue 2 |
| **Publication Year:** | 1997 |
| **Pages:** | 107-115 |
| **Keywords:** | gelatinous fibres; electron microscopy; blue stain fungus; cell wall degradation; Populus tremula; Lasiodiplodia theobromae; G-layer; Hevea brasiliensis |
| **Abstract:** | Studies on the degradative ability of the blue stain fungus Lasiodiplodia theobromae (Pat.) Griffon ' Maublanc have shown several strains to cause significant weight losses (c. 20%) in wood of temperate and tropical species, aspen (Populus tremula) and rubberwood (Hevea brasiliensis), both species that commonly form tension wood. In addition to the consumption of soluble carbohydrates, major changes occurred in the ultrastructure of fibre cell walls, with a rapid attack of the G-layer of the gelatinous fibres. Following G-layer degradation, earlywood fibres of both species showed true cell wall degradation with pronounced erosion attack, suggesting that prior destruction of the G-layer afforded greater accessibility and ease of attack of the outer secondary cell wall layers. |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Review** |
| **Source:** | IAWA Journal, Volume 18, Issue 2 |
| **Publication Year:** | 1997 |
| **Pages:** | 116-116 |
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| **Author(s):** | Clyde L. Calvin |
| **Title:** | **Host-Formed Tyloses in Vessels of the Mistletoe Phoradendron (Viscaceae)** |
| **Source:** | IAWA Journal, Volume 18, Issue 2 |
| **Publication Year:** | 1997 |
| **Pages:** | 117-126 |
| **Keywords:** | Viscaceae; Phoradendron; parasitic angiosperm; tylose; Juglans; mistletoe |
| **Abstract:** | The xylem-tapping mistletoe, Phoradendron, forms vessel-to-vessel connections with its dicotyledonous host, Juglans. Contact vessels of the host may become embolized as evidenced by the presence of tyloses. Tyloses may also occur in parasite vessels contiguous with embolized host vessels. Differences between parasite and host in nuclear size, shape and intensity of staining make it possible to determine the origin of the tyloses present in contact vessels. Host-formed tyloses occluded not only emboli zed host vessels, but also those of the parasite with which they were continuous. Some parasite vessels may terminate in vessel members lacking perforations at the juncture with host vessels; these vessels lacked tyloses. In parasitic angiosperms in general tyloses within haustoria may be formed by either host or parasite. Several functional roles are reported for tyloses including; absorption of nutrients, defence against invasion of the parasite, and the occlusion of embolized vessels, as exemplified in the present study. |
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| **Author(s):** | R.V. Rao; D.P. Aebischer; M.P. Denne |
| **Title:** | **Latewood Density in Relation to Wood Fibre Diameter, Wall Thickness, and Fibre and Vessel Percentages in Quercus Robur L.** |
| **Source:** | IAWA Journal, Volume 18, Issue 2 |
| **Publication Year:** | 1997 |
| **Pages:** | 127-138 |
| **Keywords:** | tissue proportions; vessel percentage; libriform fibres; European oak; fibre dimensions; wood properties; computer tomography |
| **Abstract:** | To elucidate the influence of growth rate and cambial age on latewood density in oak (Quercus robur L.), the diameter and wall thickness of libriform fibres, and percentage of latewood area occupied by libriform fibres and vessels, were analysed across discs often 87-year-old oak trees from Germany. |
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| **Author(s):** | Xander M. van der Burgt |
| **Title:** | **Determination of the Age of Pinus Occidentalis in La Celestina, Dominican Republic, by the Use of Growth Rings** |
| **Source:** | IAWA Journal, Volume 18, Issue 2 |
| **Publication Year:** | 1997 |
| **Pages:** | 139-146 |
| **Keywords:** | rainfall; growth periodicity; Pinus occidentalis; intra-annual rings; Tropical trees; annual growth |
| **Abstract:** | The growth rings of Pinus occidentalis Swartz trees in La Celestina, Dominican Republic, show between-tree uniformity. With difficulty, two mean time series were made from ring widths of 1) all visible, including intra-annual, rings and 2) groups of rings that were hypothesized to be annual. Both were compared with a 63-year range of rainfall data. An annual periodicity in wood formation is present, but obscured by many intra-annual rings. The annual periodicity of the trees may be a remnant of their possible origin from higher altitudes, where frosts may occur during the cold season. The youngest of the 7 investigated trees was about 39 years old; the oldest about 46 years. These seven trees contain between approximately 2 and 6 growth rings per year, with an average of about 3.5-4. |
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| **Author(s):** | R.J. Murphy; K.L. Alvin |
| **Title:** | **Fibre Maturation in the Bamboo Gigantochloa Scortechinii** |
| **Source:** | IAWA Journal, Volume 18, Issue 2 |
| **Publication Year:** | 1997 |
| **Pages:** | 147-156 |
| **Keywords:** | culm; vascular bundle; septa; density; Cell wall |
| **Abstract:** | Fibre maturation, which has been shown in a number of bamboos to be a process extending over a long period after the culm has reached its full height, has been investigated in comparable internodes (6th above ground level) in culms up to three years old, with special reference to the fibres constituting the free fibre strands immersed in the ground tissue, The possession of such strands is characteristic of this pachymorph species. The fibres of the free strands are notably more heterogeneous in terms of their diameter than those of the fibre caps adjacent to the vascular tissues. It is in some of the larger fibres of the free strands that wall thickening is longest delayed, so that, even after three years, many still remain comparatively thin-walled, especially in the inner region of the culm wall. Fibres retain a living protoplast and appear to undergo progressive septation. |
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| **Author(s):** | Helga Lindorf |
| **Title:** | **Wood and Leaf Anatomy in Sessea Corymbiflora from an Ecological Perspective** |
| **Source:** | IAWA Journal, Volume 18, Issue 2 |
| **Publication Year:** | 1997 |
| **Pages:** | 157-168 |
| **Keywords:** | ecological leaf anatomy; Solanaceae; ecological wood anatomy; Sessea |
| **Abstract:** | The wood and leaf structure of Sessea corymbiflora, a new species for the Venezuelan solanaceous flora, are described and compared from an ecological perspective. In accordance with the humid environment where the plant grows and its position in an intermediate layer of the forest, a predominantly mesomorphic wood and a mesomorphic leaf structure with intermediate features between sun and shade types (medium leaf type) are developed. Xeromorphic traits are also found, however: vasicentric tracheids and vessel grouping in the wood; thick cuticle and cutinized outer epidermal wall in the leaf. The existence of these adaptations is discussed in relation to microclimate and the effect of seasonal dry periods. The possible influence of altitude is also considered. |
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| **Author(s):** | Steven Jansen; Elmar Robbrecht; Hans Beeckman; Erik Smets |
| **Title:** | **Wood Anatomy of the Predominantly African Representatives of the Tribe Psychotrieae (Rubiaceae-Rubioideae)** |
| **Source:** | IAWA Journal, Volume 18, Issue 2 |
| **Publication Year:** | 1997 |
| **Pages:** | 169-196 |
| **Keywords:** | Rubiaceae; taxonomy; systematic wood anatomy; African Psychotrieae |
| **Abstract:** | Wood samples of representatives of Chassalia, Chazaliella, Gaertnera, Hymenocoleus, Pagamea and Psychotria are examined. The generic delimitation of these predominantly African Psychotrieae, which is mainly based on fruit morphology, is compared with wood anatomical variation patterns. Part of the variation observed is related to habit, e. g. wide vessels in the tree species Psychotria dermatophylla. Other features do have systematic significance, as shown by a cluster analysis of the data obtained. The genus pair Gaertnera/Pagamea differs obviously from the other genera and is wood anatomically clearly distinguished by the presence of fibre-tracheids and parenchyma bands. Chassalia, Chazaliella, Hymenocoleus and Psychotria have rather similar wood structure, although variation in vessel diameter, vessel arrangement, ray composition and axial parenchyma occurs. Several uncommon features are recorded: the presence of few to numerous openings in one oblique perforation plate, irregular reticulate perforation plates and multiple vessel-ray perforations with marked irregularity. |
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| **Author(s):** | Kishore S. Rajput; K. S. Rao |
| **Title:** | **Occurrence of Sieve Elements in Phloem Rays** |
| **Source:** | IAWA Journal, Volume 18, Issue 2 |
| **Publication Year:** | 1997 |
| **Pages:** | 197-201 |
| **Keywords:** | Acacia nilotica; Tectona grandis; Erythrina indica; phloem rays; Azadirachta indica; Guazuma tomentosa; Sieve elements |
| **Abstract:** | Solitary sieve elements or groups of sieve elements were encountered in the rays of secondary phloem of Erythrina indica, Guazuma tomentosa, Acacia nilotica, Azadirachta indica, and Tectona grandis trees. These elements were short and possessed simple and compound sieve plates on their transverse to slightly oblique end walls. Each sieve tube element was associated with a single companion cell at their comers. Like axial sieve tube elements, the sieve tube elements of the rays showed slime (P-protein) plugs and cytoplasmic strands when functional and massive deposition of callose on sieve plates in nonfunctional sieve tube elements. The distribution pattern of these ray sieve elements differed among the species studied. The detailed structure and possible significance of these elements are discussed. |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Wood Anatomy News** |
| **Source:** | IAWA Journal, Volume 18, Issue 2 |
| **Publication Year:** | 1997 |
| **Pages:** | 202-204 |
| **Keywords:** |  |
| **Abstract:** |  |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Association Affairs** |
| **Source:** | IAWA Journal, Volume 18, Issue 2 |
| **Publication Year:** | 1997 |
| **Pages:** | 205-206 |
| **Keywords:** |  |
| **Abstract:** |  |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Additions to e-mail directory** |
| **Source:** | IAWA Journal, Volume 18, Issue 2 |
| **Publication Year:** | 1997 |
| **Pages:** | 206-206 |
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