**IAWA Bulletin New Series - Volume 8(1)**

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| **Author(s):** | F. Yamamoto; G. Angeles; T. T. Kozlowski |
| **Title:** | **Effect of Ethrel on Stem Anatomy of Ulmus Americana Seedlings** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 3-9 |
| **Keywords:** | xylem rays; xylem increment; extractives; Bark growth; ethylene |
| **Abstract:** | Ethrel (2-chloroethylphosphonic acid) applied in lanolin paste at concentrations of 0.4, 1.6, 6.2, or 10.8% to stems of 3-month-old Ulmus americana seedlings greatly altered stem anatomy within 41 days. Application of ethrel at 1.6% or higher concentration was followed by greatly increased bark thickness primarily as a result of an increase in the amount of phloem and intercellular spaces. Xylem increment was increased following treatment with 0.4 or 1.6% ethrel and reduced by 6.2 or 10.8% ethrel. All concentrations of ethrel increased the number of vessels, reduced vessel diameters, and induced an increase in ray width and size of the individual ray cells. Ethrel at 6.2 or 10.8% inhibited differentiation of fibres, many of which were poorly developed and contained protoplasm and nucleL Ethrel also stimulated accumulation of dark-staining organic deposits in the ray parenchyma cells, axial parenchyma cells, and immature fibres. The data indicate a role of ethylene in control of growth and anatorny of stems. |
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| **Author(s):** | F. Yamamoto; T. T. Kozlowski |
| **Title:** | **Effect of Ethrel on Growth and Stem Anatomy of Pinus Halepensis Seedlings** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 11-19 |
| **Keywords:** | compression wood; resin duets; Bark growth; xylem inerement; ethylene |
| **Abstract:** | Ethrel (2 - chloroethylphosphonic acid) applied in lanolin paste at eoneentrations of 0.01, 0.10, or i % to stems of 12-month-old Pinus halepensis seedlings greatly altered the rate of growth and anatomy of stems within 60 days. Height growth was not affeeted but growth of bark and xylem tissues was greatly increased after treatment with ethrel at 0.10 or 1%. The thick bark was the result of inereased phloem production and more intercellular spaee. Increase in the amount of xylem resulted from production of more tracheids per radial file rather than an inerease in traeheid size. The highest coneentration of ethrel applied (1 %) stimulated inerease in the amount of ray tissue and production of longitudinal resin duets in the xylem. The role of ethylene in regulating differentiation of stem tissues is discussed. |
| **DOI:** | [10.1163/22941932-90001019](http://dx.doi.org/10.1163/22941932-90001019) |

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| **Author(s):** | F. Yamamoto; T. T. Kozlowski |
| **Title:** | **Effects of Flooding of Soll on Growth, Stem Anatomy, and Ethylene Production of Thuja Orientalis Seedlings·** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 21-29 |
| **Keywords:** | stem hypertrophy; Cambial growth; xylem increment; xylem rays; bark growth |
| **Abstract:** | Flooding of soil for 66 days decreased the rate of dry weight increment and induced stem hypertrophy and abnormal cambial growth in 3-year-old Thuja orientalis seedlings. The rate of dry weight increase of seedlings was reduced largely because of root decay and a decrease in root growth and in initiation of new roots. Diameters of the submerged portions of stems increased as a result of accelerated growth of bark as weil as xylem increment. stem diameters also increased above the water level but alm ost en tirely because of an increase in tracheid production. The xylem of submerged portions of stems was characterised by wide variations in tracheid size (with many largediameter tracheids), lack of arrangement of tracheids in orderly radial rows, and an increased number of xylem rays and large ray cells. Flooding also stimulated ethylene production in stems but did not affect formation of resin ducts in the bark and did not induce formation of compression wood. Ethylene appeared to play a role in regulating cambial growth of flooded plants. |
| **DOI:** | [10.1163/22941932-90001020](http://dx.doi.org/10.1163/22941932-90001020) |

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| **Author(s):** | Pieter Baas |
| **Title:** | **Review** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 30-30 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001021](http://dx.doi.org/10.1163/22941932-90001021) |

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| **Author(s):** | N. Venugopal; K. V. Krishnamurthy |
| **Title:** | **Seasonal Production of Secondary Xylem in the Twigs of Certain Tropical Trees** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 31-40 |
| **Keywords:** | Mangifera; growth rings; Terminalia; Morinda; deciduous and evergreen trees; Dalbergia; phenology; Calophyllum; Albizzia; cambial activity; Tectona |
| **Abstract:** | Secondary xylem production in four deciduous (Albizzia lebbeck, Dalbergia sissoo, Tectona grandis, Terminalia crenulata) and three evergreen trees (Calophyllum inophyllum, Mangifera indica, Morinda tinctoria) is briefly described. The total duration of xylem production in a year has been analysed. In three of the four deciduous trees there were two periods of xylem production in correspondence with the presence of two flushes of cambial activity and sprouting of new vegetative buds and foliage formation . In Tectona grandis and in all the three evergreen species studied there was only one period of xylem production. Periodicity in the production of different components of xylem tissue as well as the difference in the dimensions of the different xylem elements produced during each flush of cambial activity resulted in detectable growth ring boundaries within the xylem. Conspicuous changes were found in the starch and crystal contents of xylem cells adjacent to the cambial zone during the initiation and cessation of cambial activity . |
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| **Author(s):** | A. E. Akachuku |
| **Title:** | **A Study of Lumen Diameter Variation along the Longitudinal Axis of Wood Vessels in Quercus Rubra Using Cinematography** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 41-45 |
| **Keywords:** | cinematographie analysis; vessel lumen diameter; tree rings; Quercus rubra |
| **Abstract:** | The variation in lumen diameter along individual vessels of Quercus rubra was determined from einernatographie analysis of the wood. The between-ring differences in vessel diameter were very highly significant but they were not related to the age of the cambium. The mean lumen diameter values of earlywood vessels for rings ranged from 234 to 254 µm. The differences in the diameters of vessels within rings were also very highly signifieant. The variation in diameter along the longitudinal axis of vessels was very highly significant but it was not closely related to distance along the vessels (r2 = 15 %). However, the diameter variation along this axis differed in (a) rings and (b) vessels within rings. |
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| **Author(s):** | Pieter Baas |
| **Title:** | **Review** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 46-46 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001024](http://dx.doi.org/10.1163/22941932-90001024) |

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| **Author(s):** | Nora Martijena |
| **Title:** | **Wood Anatomy of Lithraea Ternifolia (Gill.) Barkley ' Rom. (Anacardiaceae)** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 47-52 |
| **Keywords:** | Wood anatomy; ecology; Argentina; growth rings |
| **Abstract:** | A description of the wood structure of Lithraea ternifolia (Gill.) Barkley ' Rom. (Anacardiaceae) is given. It is diffuse-porous, with pores solitary, in multiples, clusters and in chains, and small vessels with simple perforation plates. The rays are uni- and multiseriate, heterogeneous. It has paratracheal axial parenchyma and libriform fibres. Disjunctive cells and crystalliferous strands are present. The hydraulic tissue seems weil adapted to prolonged dry periods. One growth ring is generally formed each year. Moreover, other types of growth layers are delineated: intra-annual, lens-, half-Iens-, and arcshaped. |
| **DOI:** | [10.1163/22941932-90001025](http://dx.doi.org/10.1163/22941932-90001025) |

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| **Author(s):** | T. M. Middleton |
| **Title:** | **Aggregate Rays in New Zealand Nothofagus Blume (Fagaceae) Stem Wood and their Influence on Vessel Distribution** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 53-57 |
| **Keywords:** | vessel distribution; aggregate rays; Nothofagus; New Zealand beech |
| **Abstract:** | Aggregate rays occur in the stem wood of Nothofagus solandri var. cliffortioides (Hook. f.) Poole (mountain beech), N. solandri var. solandri (Hook. f.) Gerst. (black beech), N. truncata (Col.) Ckn. (hard beech), and N. fusca (Hook. f.) Gerst. (red beech), but not in N. menziesii (Hook. f.) Gerst. (silver beech). The composite structures visible in transversely sawn wood consist of groups of narrow xylem rays separated by fibres; vessels are frequently absent. The influence of aggregate rays on vessei distribution was studied using scanning electron microscopy and tested statistically. Indented growth ring boundaries are associated with the presence of aggregate rays. Aggregate rays occur in saplings. In larger trees aggregate rays taper out beyond 6 cm from the stem centre. |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Announcements** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 58-58 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001027](http://dx.doi.org/10.1163/22941932-90001027) |

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| **Author(s):** | Jun Ohtani |
| **Title:** | **Vestures in Septate Wood Fibres** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 59-67 |
| **Keywords:** | Vestures; septate fibre; Rubiaceae; Damnacanthus indicus; SEM |
| **Abstract:** | Septate wood fibres with vestures were found in the secondary xylem of Damnacanthus indicus Gaertn. fil. (Rubiaceae). The vestures were always associated with newly deposited thickenings. Their morphology is illustrated by SEM micrographs. |
| **DOI:** | [10.1163/22941932-90001028](http://dx.doi.org/10.1163/22941932-90001028) |

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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Association Affairs** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 68-68 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001029](http://dx.doi.org/10.1163/22941932-90001029) |

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| **Author(s):** | Keiko Kuroda |
| **Title:** | **Hardwood Identificatlon Using a Microcomputer and Iawa Codes** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 69-77 |
| **Keywords:** | anatomical characters.; Wood identification; Japanese hardwoods; microcomputer |
| **Abstract:** | A computerised system for wood identification was developed utilising the codes of lAWA's standard list. The programs were written in Pascal for on-line processing by a main frame computer, and later modified for microcomputer. The latter system is convenient for everyday use aIthough the memory capacity is smaller than that of the former system. Several problems were found in the IAWA-list which required modification. These modifications permitted better programming and database design. This computerised wood identification system should be a helpful tool for wood anatomists. |
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| **Author(s):** | W. Wayne Wilcox; Allison Brier |
| **Title:** | **Fixation Improves Image of Fungal Hyphae in Sem** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 78-79 |
| **Keywords:** | glutaraldehyde fixation; Wood inhabiting fungi; hyphae; SEM |
| **Abstract:** | The unnatural, collapsed appearance of fungal hyphae in most published photomicrographs of wood examined by SEM can be overcome by glutaraldehyde fixation, as if being prepared for TEM, resulting in micrographs of more normal, turgid-appearing hyphae occupying their natural position in the lumen, rather than being flattened against the cell wall. |
| **DOI:** | [10.1163/22941932-90001031](http://dx.doi.org/10.1163/22941932-90001031) |

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| **Author(s):** | R.K. Bamber |
| **Title:** | **The Origin of Growth Stresses: A Rebuttal** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 80-84 |
| **Keywords:** |  |
| **Abstract:** |  |
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| **Author(s):** | Pieter Baas |
| **Title:** | **Review** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 85-87 |
| **Keywords:** |  |
| **Abstract:** |  |
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| **Author(s):** | Ben J. H. ter Welle |
| **Title:** | **Association Affairs** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 88-89 |
| **Keywords:** |  |
| **Abstract:** |  |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Wood Anatomy News** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 1 |
| **Publication Year:** | 1987 |
| **Pages:** | 90-90 |
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| **Abstract:** |  |
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