**IAWA Journal - Volume 14(1)**

|  |  |
| --- | --- |
| **Author(s):** | I. C. Nielsen |
| **Title:** | **Preliminary material** |
| **Source:** | IAWA Journal, Volume 14, Issue 1 |
| **Publication Year:** | 1993 |
| **Pages:** | ins1-11 |
| **Keywords:** | phytohormones; earlywood production; bordered-pit development; xylogenesis; tracheid differentiation; Auxin; cambial growth |
| **Abstract:** | Stern 'chips' from large-diameter stern regions of Larix laricina were produced free of contaminating organisms. These chips, consisting of dormant vascular cambium sandwiched intact between mature xylem and phloem, were grown as in vitro cultures on the surface of an agar medium that supports apparently normal cambial cell division and xylogenesis. It was determined that auxin (l-naphthaIene acetic acid) together with nutrients at low concentrations in the medium was essential for cambial growth, whether chips were grown in continuous light or darkness. Fusiform cambial cells underwent successive periclinal divisions to produce radial files of enlarged, bordered-pitted, secondary-walled, lignified and autolysed earlywood tracheids. As many as 20 new tracheids per radial file were produced, and > 95% of these were autolysed after 35 days of culture. |
| **DOI:** | [10.1163/22941932-90000568](http://dx.doi.org/10.1163/22941932-90000568) |

|  |  |
| --- | --- |
| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Review** |
| **Source:** | IAWA Journal, Volume 14, Issue 1 |
| **Publication Year:** | 1993 |
| **Pages:** | 12-12 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90000569](http://dx.doi.org/10.1163/22941932-90000569) |

|  |  |
| --- | --- |
| **Author(s):** | Helen Miller; J.R. Barnett |
| **Title:** | **The Formation of Callus at the Graft Interface in Sitka Spruce** |
| **Source:** | IAWA Journal, Volume 14, Issue 1 |
| **Publication Year:** | 1993 |
| **Pages:** | 13-21 |
| **Keywords:** | Picea sitchensis; callus development; cambium; graft formation; resin canals; ray parenchyma; needle traces |
| **Abstract:** | The early stages of graft union formation in Sitka spruce [Picea sitchensis (Bong.) Carr] have been examined using light microscopy in order to determine the origin of callus between the scion and rootstock. All living, undamaged cells exposed to the environment by the process of stern preparation for grafting have been found to be capable of producing callus. The first cells to respond in this way, within two days of grafting, were the epithelial cells of severed resin canals and ray parenchyma exposed where the phloem and xylem of the seion and rootstock were cut through. Fusiform cambium cells near to the graft interface dedifferentiated into callus much later (12-15 days after grafting) by becoming rounded in transverse seetion, and by dividing horizontally to produce a large number of smaller callus cells. Most callus was produced by cells external to the cambium by dedifferentiation and proliferation of ray cells, and of parenchyma associated with severed needle traces. |
| **DOI:** | [10.1163/22941932-90000570](http://dx.doi.org/10.1163/22941932-90000570) |

|  |  |
| --- | --- |
| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Reviews** |
| **Source:** | IAWA Journal, Volume 14, Issue 1 |
| **Publication Year:** | 1993 |
| **Pages:** | 22-22 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90000571](http://dx.doi.org/10.1163/22941932-90000571) |

|  |  |
| --- | --- |
| **Author(s):** | Simon Ellis; Stavros Avramidis |
| **Title:** | **Brown Stain in Pacific Coast Hemlock** |
| **Source:** | IAWA Journal, Volume 14, Issue 1 |
| **Publication Year:** | 1993 |
| **Pages:** | 23-28 |
| **Keywords:** | brown stain; kiln-drying; Tsuga heterophylla; Abies amabilis |
| **Abstract:** | The microscopic appearance of brown stain occurring in specimens of Tsuga heterophylla (Raf.) Sarg. and Abies amabilis (Dougl.) Forbes after kiln-drying was investigated. Stain was most evident in the sapwood, particularly in the earlywood. The majority of the stain was in longitudinal tracheids, either filling the cell lumen or lining the inner cell wall. However, some stain occurred in the rays. Little or no stain was observed within the cell walls. |
| **DOI:** | [10.1163/22941932-90000572](http://dx.doi.org/10.1163/22941932-90000572) |

|  |  |
| --- | --- |
| **Author(s):** | Chih Ming Chiu; Chen Hui Lee |
| **Title:** | **Wood-Bark Grain Spirality Correlations in Calocedrus Formosana** |
| **Source:** | IAWA Journal, Volume 14, Issue 1 |
| **Publication Year:** | 1993 |
| **Pages:** | 29-34 |
| **Keywords:** | Calocedrus; non-destructive sampling; grain angle; spiral grain; tree breeding; Taiwan incensecedar |
| **Abstract:** | Bark grain angle at two heights was determined for 15 Taiwan incense-cedar (Calocedrus formosana) trees growing in a 31-year-old plantation in Central Taiwan. From each tree, two circular disks (5 cm and 10 cm thick) were sampled for measurement of wood grain angle. All data were subjected to standard analysis of variance. Correlations between measurements from non-destructive (bark grain angle) and destructive (wood grain angle) sampling and from 5 cm and 10 cm thick disks were computed and found to be statistically significant. A higher precision (smaller errors me an squares) for bark grain angle was obtained by averaging values from two trunk height levels rather than by using values from a single trunk height level. This study suggests that bark grain angle prediets wood grain angle in Taiwan incense-cedar and that trees with desirable wood grain angle can be selected using non-destructive measurements of bark grain angle. Average wood grain angle was approximately one-third of average bark grain angle. |
| **DOI:** | [10.1163/22941932-90000573](http://dx.doi.org/10.1163/22941932-90000573) |

|  |  |
| --- | --- |
| **Author(s):** | Robert H. Archer; Abraham E. van Wyk |
| **Title:** | **Bark Structure and Intergeneric Relationships of Some Southern African Cassinoideae (Celastraceae)** |
| **Source:** | IAWA Journal, Volume 14, Issue 1 |
| **Publication Year:** | 1993 |
| **Pages:** | 35-53 |
| **Keywords:** | taxonomy; Cassinoideae; systematic bark anatomy; Celastraceae; Cassine s.l. |
| **Abstract:** | At present Cassine in southern Africa is treated in a wide sense (s.l.), including amongst others Allocassine p. p., Cassines. str., Crocoxylon, Elaeodendron, Lauridia, and Mystroxylon. A comparative anatomical study was made of mature bark representing 16 southern African species of Cassine s.l., and the monotypic Allocassine, Hartogiella and Maurocenia (all members of the subfamily Cassinoideae). Six bark types are distinguished on the basis of the type of sclerenchymatous elements in the secondary phloem; presence or absence of styloid crystals, e1astic threads, and sclerified phelloderm; stratified homogeneous phellem; and degree of rhytidome development. These correlate to a considerable extent with the generic subdivision of Cassine s.l. proposed by Loesener (1942) and Robson (1965). On the basis of bark anatomy and other evidence, it is proposed that the circumscription of Cassine be restricted to include only the southern African species C. peragua and C. parvifolia, and possibly Hartogiella. Crocoxylon, Elaeodendron, Lauridia and Mystroxylon should be reinstated or maintained, although with some modification of the originally defined generic limits. |
| **DOI:** | [10.1163/22941932-90000574](http://dx.doi.org/10.1163/22941932-90000574) |

|  |  |
| --- | --- |
| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Reviews** |
| **Source:** | IAWA Journal, Volume 14, Issue 1 |
| **Publication Year:** | 1993 |
| **Pages:** | 54-54 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90000575](http://dx.doi.org/10.1163/22941932-90000575) |

|  |  |
| --- | --- |
| **Author(s):** | Gudrun Weiner; Walter Liese |
| **Title:** | **Generic Identification Key to Rattan Palms Based on Stem Anatomical Characters** |
| **Source:** | IAWA Journal, Volume 14, Issue 1 |
| **Publication Year:** | 1993 |
| **Pages:** | 55-61 |
| **Keywords:** | rattan; anatomical characters; Palmae; Calamoideae; generic identification key; stern anatomy |
| **Abstract:** | The rattan palms consist of 13 genera which present distinct anatomical differences. Of special significance are the number of phloem fields and vessels per vascular bundie, type of ground parenchyma, occurrence of fibre rows in the cortex, 'yellow cap', raphide sacs, arrangement of sieve tubes and size of the fibre sheath of the outer vascular bundles. On the basis of these features a dichotomous key for the identification of the rattan genera has been developed. Since the technological properties of the c. 650 species differ considerably, this means of identification at least at the generic level is of practical value. |
| **DOI:** | [10.1163/22941932-90000576](http://dx.doi.org/10.1163/22941932-90000576) |

|  |  |
| --- | --- |
| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Reviews** |
| **Source:** | IAWA Journal, Volume 14, Issue 1 |
| **Publication Year:** | 1993 |
| **Pages:** | 62-62 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90000577](http://dx.doi.org/10.1163/22941932-90000577) |

|  |  |
| --- | --- |
| **Author(s):** | K.M. Bhat; K.M. Mohamed Nasser; P.K. Thulasidas |
| **Title:** | **Anatomy and Identification of South Indian Rattans (Calamus Species)** |
| **Source:** | IAWA Journal, Volume 14, Issue 1 |
| **Publication Year:** | 1993 |
| **Pages:** | 63-76 |
| **Keywords:** | cell dimensions; Palmae; Calamoideae; anatomical variation; tissue percentage; species identification |
| **Abstract:** | The stern anatomy of fifteen species of Calamus occurring in South India was studied to explore the possibility of using anatomical features to distinguish between the rattans at the species level. The most promising features of diagnostic importance are epidermal cell size and shape and 'papilla'-like reflective bodies. While metaxylem vessel diameter, fibre wall thickness and stomatal frequency are often useful, fibre length and diameter, ground parenchyma, vessel perforations and silica bodies are of relatively little value in species separation. Although cell size often differs between the species of two different stern diameter classes, the majority of the anatomical features overlap among the species. Stern position is, however, an important source of anatomical variation. With the possible combination of several anatomical characteristics and stern diameter, a tentative identification key to South Indian rattan species is prepared. |
| **DOI:** | [10.1163/22941932-90000578](http://dx.doi.org/10.1163/22941932-90000578) |

|  |  |
| --- | --- |
| **Author(s):** | Juliet Prior; Peter Gasson |
| **Title:** | **Anatomical Changes on Charring Six African Hardwoods** |
| **Source:** | IAWA Journal, Volume 14, Issue 1 |
| **Publication Year:** | 1993 |
| **Pages:** | 77-86 |
| **Keywords:** | identification; archaeological and modern charcoal; Africa; ecological wood anatomy; SEM |
| **Abstract:** | Charcoal often retains sufficient qualitative anatomical features for the family and genus of the wood to be identified. During the charring process however, considerable and sometimes unexpected changes in quantitative characters occur, which are of particular importance to species identification and ecological wood anatomy. Comparative measurements were made using charred and uncharred trunkwood from six common southern African savanna trees. SampIes were charred for 30 minutes at either 400 or 700°C. Charcoal yield and significant quantitative changes in vessel diameter and ray cells are related both to wood anatomy and to the process of combustion. Differences observed on charring were most closely correlated with the nature and quantity of the fibres. Axial parenchyma cells expanded after charring at both temperatures. |
| **DOI:** | [10.1163/22941932-90000579](http://dx.doi.org/10.1163/22941932-90000579) |

|  |  |
| --- | --- |
| **Author(s):** | Zhongmin Dong; Pieter Baas |
| **Title:** | **Wood Anatomy of Trees and Shrubs from China. V. Anacardiaceae** |
| **Source:** | IAWA Journal, Volume 14, Issue 1 |
| **Publication Year:** | 1993 |
| **Pages:** | 87-102 |
| **Keywords:** | systematic wood anatomy; Anacardiaceae; China; wood identification; ecological wood anatomy |
| **Abstract:** | The wood anatomy of twenty species belonging to eleven genera of Anacardiaceae native to or commonly cultivated in China is described in detail and a generic wood anatomical key is given. The wood anatomical diversity pattern partly agrees with the traditional classification into the tribes Anacardieae (Anacardium, Buchanania, and Mangijera), Spondieae (Choerospondias, Dracontomelon, Lannea, and Spondias) and Rhoideae (Cotinus, Pistacia, Rhus, and Toxicodendron). |
| **DOI:** | [10.1163/22941932-90000580](http://dx.doi.org/10.1163/22941932-90000580) |

|  |  |
| --- | --- |
| **Author(s):** | Steven R. Manchester; E.A. Wheeler |
| **Title:** | **Extinct Juglandaceous Wood from the Eocene of Oregon and Its Implications for Xylem Evolution in the Juglandaceae** |
| **Source:** | IAWA Journal, Volume 14, Issue 1 |
| **Publication Year:** | 1993 |
| **Pages:** | 103-111 |
| **Keywords:** | paleobotany; ecological wood anatomy; Juglandaceae; Platycaryeae; evolution; Eocene; fossil wood |
| **Abstract:** | Clarnoxylon blanchardii gen. et sp. nov. is a new taxon for fossil wood with a suite of features diagnostic of the Juglandaceae. It occurs at two Middle Eocene (c. 43-44 million years b.p.) localities in the Clarno Fonnation of central Oregon, USA. Clarnoxylon resembles the Platycaryeae and the Hicorieae in having exclusively simple perforation plates and solid pith. However, the common occurrence of crystalliferous idioblasts in the rays, but not in the axial parenchyma, and the cooccurrence at Clarno of platycaryoid fmits and pollen unaccompanied by hicorioid fmits indicate that Clarnoxylon has affinities with the Platycaryeae. Differences between Clarnoxylon and Platycarya support previous suggestions that short vessel elements, helical thickenings, and vascular tracheids are derived characters of Platycarya. These differences are also in accord with the ecological adaptation of the extant genus Platycarya to a temperate climate contrasting with the tropical Middle Ebcene setting of Clarnoxylon. |
| **DOI:** | [10.1163/22941932-90000581](http://dx.doi.org/10.1163/22941932-90000581) |

|  |  |
| --- | --- |
| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Wood Anatomy News** |
| **Source:** | IAWA Journal, Volume 14, Issue 1 |
| **Publication Year:** | 1993 |
| **Pages:** | 112-113 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90000582](http://dx.doi.org/10.1163/22941932-90000582) |

|  |  |
| --- | --- |
| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Association Affairs** |
| **Source:** | IAWA Journal, Volume 14, Issue 1 |
| **Publication Year:** | 1993 |
| **Pages:** | 114-114 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90000583](http://dx.doi.org/10.1163/22941932-90000583) |