SPECIAL PUBLICATION ARLCD-SP-81006

THE FUNGAL DEGRADATION OF WOOD AND WOOD PRODUCTS SELECTED BIBLIOGRAPHY

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AUGUST 1981

US ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND
LARGE CALIBER
WEAPON SYSTEMS LABORATORY
DOVER, NEW JERSEY

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

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The literature search was conducted by the Plastics Technical Evaluation Center (PLASTEC), ARRADCOM, for the Microbiology Laboratory, MSD, LCWSL, ARRADCOM.

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Fungi	Rot
Biodeterioration	Preservatives
Wood	Fungicides
Tropical deterioration	Wood products
Storage	

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

A bibliography of reports, proceedings, and technical papers reporting work on the microbiological deterioration of wood and wood products primarily in tropical environments. Included are the principal types of wood used in packaging applications and the types of diseases most often encountered. Treatments, such as preservatives, coatings, fungicides, etc., are also covered.

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UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

PREFACE

This project was originated as part of an overall program called, "The Military Adaptation of Commercial Items (MCI)." The primary objective is to coalesce existing technical information into an easy-to-use reference volume. This volume combines references with abstracts that are indexed and arranged for use as a handy desk tool.

The authors acknowledge the valuable assistance given by Karen Frister and Ann Chervnsik.

INTRODUCTION

This bibliography reflects a series of literature searches that coalesce existing references to work in areas concerned with packaging applications that use wood in severe environments such as the tropics.

Wood in tropical climates, whether in living trees, stored as lumber, or as finished products, becomes a habitat for colonies of fungi. These fungi are able to interact with most living organisms as well as themselves and are part of a phenomenon that requires an intimate knowledge of the chemistry and biology involved.

Among the many types of fungi found in the tropics, several of the more prominent ones (deuteromycetes) attack wood (i.e., white rot, brown rot, red rot) and were concentrated on in this search. Other types produce stain, while another affects wood in storage by producing molds. These fungi may attack the wood itself or materials added to the wood such as adhesives, paints, or coatings. Some of these fungi can be allergenic or toxic to humans.

This bibliography has been prepared to assist the researcher to understand the reactions that take place and to reduce harmful effects imposed on wood or wood products through the use of preservatives or other means. The search concentrated on the microbiological deterioration or degradation of wood (trees) or wood products which are found or used in tropical climates.

USE OF THE BIBLIOGRAPHY

The references cited are from several data bases, both commercial and government. They include: Chemical Abstracts (1967-present), Engineering Index (1970-1981), National Agricultural Library (Agricola, 1970-present), National Technical Information Service (NTIS, 1964-1981), Defense Technical Information Center (DTIC, 1955-present), Current Research Information System (CRIS, 1974-present), and Commonwealth Agricultural Bureau (CAB, 1973-present).

The format of these references differs somewhat according to the particular style used by each data base producer. In most cases, an abstract accompanies a full citation which adequately describes the source of information. An accompanying list of descriptors further enhances the description of the article, technical report, or conference proceeding.

To facilitate the use of this bibliography, a subject index was prepared and is included in this document. Several standard conventions were adopted to provide agreement and to eliminate redundancy. Some contradictions are as follows:

1. The use of plural versus singular terms depending on the use by the authors. In each case, one form was used throughout the index even though it was found both ways in the actual text (i.e., fungus not fungi, pallets not pallet).

2. As often as possible, the noun has been used instead of the adjective (i.e., tropics instead of tropical).

3. Terms considered to be common to all citations were not listed (i.e., wood).

4. When known, the specific name of the tree is given (i.e., use southern pine or yellow pine not pine).

5. Biodeterioration instead of deterioration.

1015702 F1002-01250 1

1. **A laboratory experiment on the natural resistance of tropical Mexican wood species to attack by wood-destroying fungi.**

Ensayo de laboratorio sobre resistencia natural de la madera de especies tropicales mexicanas al ataque de hongos xilofagos.

Perez-Morales, J. V. ; Pinzon-Picaseno, L. M. ; Echenique-Manrique, R.

Inst. Investigaciones sobre Recursos Bioticos, Xalapa, Mexico.

Boletin de la Sociedad Mexicana de Micologia, 1977, No. 11, 99-109

Sec Jnl Source: Review of Plant Pathology 57, 5720.

Languages: Es Summary Languages: en

8 ref.

Using the soil-block culture method, Spondias mombin wood (reference species) and heartwood of Guarea chichon, Omphalea cardiophylla, Calocarpum sapota and Brosimum alicastrum were exposed to Lentinus lepideus and Lenzites trabea (Gloeophyllum trabeum) causing brown rot, and Polyporus (Coriolus) versicolor and P. (Pycnoporus) sanguineus (white rot). The white rot fungi, particularly C. versicolor, were most active. G. chichon was highly resistant.

Descriptors: Spondias mombin; Guarea chichon; Omphalea cardiophylla; Calocarpum sapota; Brosimum alicastrum; Lentinus lepideus; Gloeophyllum trabeum; Coriolus versicolor; resistance; study methods; Pycnoporus sanguineus; decay in wood; laboratory testing

DC No: FPA 5.22 + 3.4

Subject Codes: F10522 F1034

931193 M0057-05720 1

2. **A laboratory experiment on the natural resistance of tropical Mexican wood species to attack by wood-destroying fungi.**

Ensayo de laboratorio sobre resistencia natural de la madera de especies tropicales mexicanas al ataque de hongos xilofagos.

Perez-Morales, J. V. ; Pinzon-Picaseno, L. M. ; Echenique-Manrique, R.

Instituto de Investigaciones sobre Recursos Bioticos, Xalapa, Mexico.

Boletin de la Sociedad Mexicana de Micologia, 1977, No.11, 99-109

Languages: Es Summary Languages: en

8 ref., 1 fig., 3 tab.

The soil-block culture method was used. Spondias mombin wood (reference sp.) and heartwood of Guarea chichon, Omphalea cardiophylla, Calocarpum sapota and Brosimum alicastrum were exposed to Lentinus lepideus and Lenzites trabea (Gloeophyllum trabeum) causing brown rot, and Polyporus (Coriolus) versicolor and P. (Pycnoporus) sanguineus (white rot). The white rot fungi, particularly C. versicolor, were most active. G. chichon was highly resistant.

Descriptors: timber; brown rot fungi; white rot fungi; Mexico, resistance; Lentinus lepideus; Gloeophyllum trabeum; Coriolus versicolor; Pycnoporus sanguineus; techniques; evaluating resistance; timber to wood-destroying fungi

Identifiers: Mexico

Subject Codes: M3430

G21435 ID NO.- EI760321435

3. **AMERICAN WOOD-PRESERVERS' ASSOCIATION, 71ST ANNUAL MEETING, PROCEEDINGS, 1975.**

Anon

Am Wood-Preserv Assoc, Washington, DC

Proc Am Wood-Preserv Assoc v 71 1975, for Meet, San Francisco, Calif, Apr 28-30 1975, 441 p CODEN: PAWPAG

Thirty-three papers by various authors are presented. The topics discussed are: Tropical woods, treated wood samples, EPA liaison, chemical modification, poles, railway ties, quality control, preservation research, construction and biodeterioration, pollution control, productivity, preservatives, foundations, techniques, particle boards, creosote, treatment of lumber, timber, piles, and posts, crossties, switchties, accelerated evaluation, statistics, and wood preserving plants. Selected papers are indexed separately.

DESCRIPTORS: (*WOOD PRESERVATION, *Research), (WOOD, Impregnation), WOOD PRODUCTS,

CARD ALERT: 811, 912

4

79022310 79718225 Holding Library: AGL; AGL
A method for determining the virulence of breeding strains of wood-inhabiting edible fungi =
Gramss, G.;
Ottawa , Dept. of the Secretary of State, Translation Bureau, Multilingual Services Division , 1975 ONTARIO
14 leaves.
NAL: TRANSL 24295
Languages: ENGLISH ; GERMAN
Bibliography: leaf 14
Document Type: MONOGRAPH; TRANSLATION
Section Headings: PLANT FUNGUS DISEASES AND CONTROL(4505)

5

A NEW METHOD FOR APPRAISING DECAY CAPABILITIES OF MICRO-ORGANISMS FROM WOOD CHIP PILES

Forest Products Lab Madison Wis (141700)

Forest Service research paper
AUTHOR: Eslyn, Wallace E.
6223B2 Fld: 11L, 920 USGRDR6915
May 69 10p
Rept No: FSRP-FPL-107

Abstract: Describes a new method for determining the decay capabilities of micro-organisms isolated from wood chips stored outside in piles. (Author)

Descriptors: (*Wood, Degradation), (*Microorganisms, Wood), Culture media, Moisture, Fungi, Test equipment, Materials, Design, Sterilization, Water, Test methods, Statistical data, Wood pulp

Identifiers: Wood chips

AD-688 365 CFSTI Prices: HC A02/MF A01

6

849550 M0057-01972 1
Antifungal compounds. Volume 1. Discovery, development, and uses.
Siegel, M. R. ; Sisler, H. D. (Editors);
Publ: New York, USA; Marcel Dekker, Inc.
1977. 600 pp. ISBN 0-8247-6557-5
Price: SFr 175
Languages: En
This reference book, the first of 2 vols., contains contributions from many authors on the discovery, development and use of fungicides and associated problems. Chapters deal with history of fungicides; fungicides in perspective; detecting potential protective and systemic antifungal compounds; development of chemicals for plant disease control; applying foliar fungicides; control of seed and soilborne plant diseases; of vascular pathogens; of foliage and fruit diseases; of post-harvest diseases and of plant diseases in the tropics; fungicides in industry; in wood preservation and in medicine; residue analysis; safe and responsible use of fungicides; problems and prospects.
Descriptors: books; Antifungal compounds. Vol.1.; antifungal compounds; book
Subject Codes: M050

7

152516 ID NO.- EI71X052516
Biodeterioration of materials, microbiological and allied aspects. Proc of 1st Int Biodeterioration Symp, Sept 9- 14 1968, Southampton Univ, Engl
WALTERS ED AH; ELPHICK ED JJ
Elsevier Publ Co Ltd, London, and Amer Elsevier Publ Co, Inc, New York, 1968 (recd 12/11/69), 740 p
About seventy papers have been published concerned with the following subject areas- fundamental and mechanisms of biodeterioration; ecological aspects; biodeterioration resistance and control; protection of materials; hydrocarbon microbiology and metallic corrosion; timber decay; biocides; wood- destroying mechanisms; marine fouling; and stored products microbiology. Individual papers are indexed separately.
DESCRIPTORS: *BIOENGINEERING, FUNGICIDES,
CARD ALERT: 000

8 **International Biodeterioration Symposium (1st), University of Southampton, 9-14 September 1968**

Office of Naval Research, London (England). (265 000)

Conference rept.
AUTHOR: Haderlie, E. C.
A1713B4 Fld: 11C, 11F, 11L, 6C, 71G GRAI7107
1 Oct 68 11p
Rept No: ONRL-C-20-68
Distribution Limitation now Removed.

Abstract: From 9-14 September 1968 the First International Biodeterioration met at Southampton University. 75 papers were presented covering such aspects of biodeterioration as timber decay, textile deterioration, marine fouling and fungicide research. (Author)

Descriptors: (*Materials, Degradation), (*Degradation, Symposia), Bacteria, Corrosion, Fungus deterioration, Ecology, Wood, Wood pulp, Hydrocarbons, Metals, Fuels, Fouling, Fungicides, Protective treatments, Great Britain

Identifiers: *Biodeterioration

AD-841 571 NTIS Prices: PC A02/MF A01

9 289180 M0053-03735 1

Biodeterioration of materials, Volume 2.

Walters, A. H. ; Hueck-Van der Plas, E. H. (Editors); Upsher, F. J. ; Flannigan, B. ; Eriksson, K.-E. ; Pettersson, B. ; Varadi, J. ; King, B. ; Eggins, H. O. W. ; Walsh, J. H. ; Eaton, R. A. ; Irvine, J. ; Belenkov, D. A. ; Miller, G. ; Boutelje, J. B. ; Goransson, B. ; Butcher, J. A. ; Savory, J. G. ; Dunleavy, J. A. ; Fogarty, W. M. ; Coursey, D. G. ; Ogundana, S. K. ; Apinis, A. E. ; Trentesaux, E. ; Multon, J. L. ; Guilbot, A. ; Poisson, J. ; Cahagnier, B. ; Chanet, M.

Publ: London, UK. Applied Science Publishers Ltd.
1972, 514 pp.
Price: 15
Languages: En
76 fig., 9 diag., 83 graphs, 4 maps, 116 tab. See RAM 48, 1060

This book covers the proceedings of the 2nd International Biodeterioration Symposium, Lunteren, Netherlands, 13-18 Sept. 1971. Papers included the following. Upsher, F.J. Microfungi at the joint tropical research unit, Innisfail, Queensland (27-34). Flannigan, B. Seed-borne microfungi and their role in degrading components of barley husk (35-41). Eriksson, K.-E.; Pettersson, B. Extracellular enzyme system utilized by the fungus Chrysosporium lignorum for the breakdown of cellulose (116-120). Varadi, J. The effect of aromatic compounds on cellulase and xylanase production of fungi Schizophyllum commune and Chaetomium globosum (129-135). King, B.; Eggins, H.O.W. Some observations on decay mechanisms of microfungi deteriorating wood (145-151). Ealsh, J.H. Growth and deteriorative ability of fungi at low oxygen tensions (152-160). Eaton, R.A.; Irvine, J. Decay of untreated wood by cooling tower fungi (192-200). Belenkov, D.A. A laboratory method for evaluating the protection probability of wood preservatives against fungi (246-248). Miller, G. Tributyltin oxide: some factors influencing its development and application as a preservative (279-285). Boutelje, J.B.; Goransson, B. Decay in wood constructions below the ground water table (311-318). Butcher, J.A. Analysis of the fungal population in wood (319-325). Savory, J.G. Prevention of staining in packaged Baltic redwood during shipment and storage (326-329). Dunleavy, J.A.; Fogarty, W.M. Studies on the permeability increase of refractory spruce wood during water storage (330-335). Coursey, D.G. Biodeteriorative losses in tropical horticultural produce (464-471). Ogundana, S.K. The post-harvest decay of yam tubers and its preliminary control in Nigeria (481-492). Apinis, A.E. Mycological aspects of stored grain (493-498). Trentesaux, E.; Multon, J.L.; Guilbot, A. Development of some physiological and biological characteristics of wheat grain during storage under controlled conditions (499-506).

Descriptors: books; Biodeterioration of materials, Vol. 2; conferences; Int. Biodeterioration Symposium, Lunteren, Netherlands

Subject Codes: M02

323534 ID NO.- EI730523534

10 **BIODETERIORATION OF MATERIALS, VOLUME 2.**

Meyers, Samuel P.; Chung, Soomi Lee; Ahearn, Donald G.; Varadi, Juraj; Cain, R. B.; Willats, A. J.; Bird, J. A.; King, B.; Eggins, H. O. W.; Walsh, J. H.; Sharpley, J. M.; King, M. E.; Connolly, R. A.; Agarwal, P. N.; Nanda, J. N.

Intl Biodeterioration Symp, 2nd, Proc, Lunteren, Neth, Sep 13-18 1971, 514 p. Sponsored by Organ for Econ Co-op and Dev Publ by Appl Sci Publ Ltd, Barking, Essex, Engl, 1972. Also Available from Halsted Press Div, John Wiley & Sons, Inc, New York

Following is a continuation of the list of titles and authors: Biodegradation of Cellulosic Substrates by Marine Fungi. By Samuel P. Meyers, Soomi Lee Chung and Donald G. Ahearn. Effect of Aromatic Compounds on Cellulase and Xylanase Production of Fungi Schizophyllum commune and Chaetomium globosum. By Juraj Varadi. Surfactant Biodegradation: Metabolism and Enzymology. By R. B. Cain, A. J. Willats and J. A. Bird. Some Observations on Decay Mechanisms of Microfungi Deteriorating Wood. By B. King and H. O. W. Eggins. Growth and Deteriorative Ability of Fungi at Low Oxygen Tensions. By J. H. Walsh. Laboratory Analysis of Problems in Papermakers' Felts. By J. M. Sharpley and M. E. King. Soil Burial of Materials and Structures. By R. A. Connolly. Correlation of Tropical Room Experiments with Weathering Exposures. By P. N. Agarwal and J. N. Nanda.

DESCRIPTORS: *ENVIRONMENTAL ENGINEERING, WOOD PRESERVATION, PAPERMAKING,

CARD ALERT: 811, 901

323535 ID NO. EI730523535

11 **BIODETERIORATION OF MATERIALS, VOLUME 2.**

Lloyd, A. O.; Eaton, R. A.; Irvine, J.; Klausmeier, R. E.; La Brijn, J.; Kauffman, H. R.; Turner, R. L.; Mills, J.; Allsopp, D.; Eggins, H. O. W.; Sharpe, A. N.; Woodrow, M. N.; Smith, R. N.; Goulding, K. H.; Belenkov, D. A.

Intl Biodeterioration Symp, 2nd, Proc, Lunteren, Neth, Sep 13-18 1971, 514 p. Sponsored by Organ for Econ Co-op and Dev Publ by Appl Sci Publ Ltd, Barking, Essex, Engl, 1972. Also Available from Halsted Press Div, John Wiley & Sons, Inc, New York

Following is a continuation of the list of titles and authors: Approach to the Testing of Lichen Inhibitors. By A. O. Lloyd. Decay of Untreated Wood by Cooling Tower Fungi. By R. A. Eaton and J. Irvine. Mix or Pure Culture Inocula for Assessing Biodeterioration of Plastics: An Interlaboratory Study. By R. E. Klausmeier. Fungal Testing of Textiles: A Summary of Co-operative Experiments Carried out by the Working Group on Textiles of the International Biodegradation Research Group (IBRG). By J. La Brijn and H. R. Kauffman. Important Factors in the Soil Burial Test Applied to Rotproofed Textiles. By R. L. Turner. Some New Developments in Cellulosic Material Testing Using Perfusion Techniques. By J. Mills, D. Allsopp and H. O. W. Eggins. Rapid Test for Biodegradability by Pseudomonas Organisms. By A. N. Sharpe and M. N. Woodrow. Primary and Secondary Evaluation of Microbiocides. By R. N. Smith and K. H. Goulding. Laboratory Method for Evaluating the Protection Probability of Wood Preservatives against Fungi. By D. A. Belenkov.

DESCRIPTORS: *ENVIRONMENTAL ENGINEERING, WOOD PRESERVATION, TEXTILES, PLASTICS,

CARD ALERT: 811, 817, 819, 901

323536 ID NO.- EI730523536

12 **BIODETERIORATION OF MATERIALS, VOLUME 2.**

Becker, Guenther; Zyska, B. J.; Rytych, B. J.; Zankowicz, L. P.; Fudalej, D. S.; Kaplan, A. M.; Mandels, Mary; Greenberger, M.; Miller, G.; Rossmoore, H. W.; De Mare, J.; Smith, T. H. F.; Pitis, Ion

Intl Biodeterioration Symp, 2nd, Proc, Lunteren, Neth, Sep 13-18 1971, 514 p, Sponsored by Organ for Econ Co-op and Dev Publ by Appl Sci Publ Ltd, Barking, Essex, Engl, 1972, Also Available from Halsted Press Div, John Wiley & Sons, Inc, New York

Following is a continuation of the list of titles and authors: Problems of Testing Materials with Termites. By Guenther Becker. Microbiological Deterioration of Rubber Cables in Deep Mines and the Evaluation of Some Fungicides in Rubber. By B. J. Zyska, B. J. Rytych, L. P. Zankowicz and D. S. Fudalej. Mode of Action of Resins in Preventing Microbial Degradation of Cellulosic Textiles. By A. M. Kaplan, Mary Mandels and M. Greenberger. Tributyltin Oxide: Some Factors Influencing Its Development and Application as a Preservative. By G. Miller. Anti- and Pro-Microbial Activity of Hexahydro 1, 3, 5, tris (2-hydroxyethyl)-s-triazine in Cutting Fluid Emulsion. By H. W. Rossmoore, J. De Mare and T. H. F. Smith. Mycological Protection of Rubber for Industrial Products. By Ion Pitis.

DESCRIPTORS: *ENVIRONMENTAL ENGINEERING, RUBBER, CUTTING FLUIDS, WOOD PRESERVATION.

CARD ALERT: 607, 811, 818, 901

323537 ID NO.- EI730523537

13 **BIODETERIORATION OF MATERIALS, VOLUME 2.**

Singh, I. D.; Perti, S. L.; Tandon, R. N.; Boutelje, Julius B.; Goransson, Bo; Butcher, John A.; Savory, J. G.; Dunleavy, J. A.; Fogarty, W. M.; Henningsson, Bjorn; Skinner, Catherine E.; Pauli, O.; Coleman, L. J.; Hall, J. F.; Hoffmann, E.

Intl Biodeterioration Symp, 2nd, Proc, Lunteren, Neth, Sep 13-18 1971, 514 p, Sponsored by Organ for Econ Co-op and Dev Publ by Appl Sci Publ Ltd, Barking, Essex, Engl, 1972, Also Available from Halsted Press Div, John Wiley & Sons, Inc, New York

Following is a continuation of the list of titles and authors: Anti-Cockroach and Anti-Fungal Surface Coatings. By I. D. Singh, S. L. Perti and R. N. Tandon. Decay in Wood Constructions Below the Ground Water Table. By Julius B. Boutelje and Bo Goransson. Analysis of the Fungal Population in Wood. By John A. Butcher. Prevention of Staining in Packaged Baltic Redwood During Shipment and Storage. By J. G. Savory. Studies on the Permeability Increase of Refractory Spruce Wood During Water Storage. By J. A. Dunleavy and W. M. Fogarty. Yield and Properties of Sulphate Pulp from Decayed Birch and Aspen Pulpwood. By Bjorn Henningsson. Laboratory Test Methods for Biocidal Paints. By Catherine E. Skinner. Paint Fungicides $EM DASH$ A Review. By O. Pauli. Some Side Effects of Fungicides in Paints. By L. J. Coleman and J. F. Hall. Development of Fungus-Resistant Paints. By E. Hoffmann.

DESCRIPTORS: *ENVIRONMENTAL ENGINEERING, WOOD PRESERVATION, PAINT.

CARD ALERT: 811, 813, 901

323538 ID NO.- EI730523538

14 **BIODETERIORATION OF MATERIALS, VOLUME 2.**

Van Der Heide, G. D.; Baynes-Cope, A.; Gambetta, Anna; Orlandi, Elisabetta; Paleni, Andrea; Curri, Sergio; Nair, S. M.; Cymorek, S.; Locci, Romano; Jones, E. B. Gareth; Irvine, J.; Haderlie, E. C.; Lorenz, J.; de Wolf, P.; Skinner, Catherine E.

Intl Biodeterioration Symp, 2nd, Proc, Lunteren, Neth, Sep 13-18 1971, 514 p, Sponsored by Organ for Econ Co-op and Dev Publ by Appl Sci Publ Ltd, Barking, Essex, Engl, 1972, Also Available from Halsted Press Div, John Wiley & Sons, Inc, New York

Following is a continuation of the list of titles and authors: Problems of Ship-Archaeology and the Preservation of Ancient Ship Remnants. By G. D. Van Der Heide. Choice of Biocides for Library and Archival Material. By A. Baynes-Cope. Fungal Species on Wooden Artistic Works Under Particular Wet Conditions. By Anna Gambetta and Elisabetta Orlandi. Biological Aggression of Works of Art in Venice. By Andrea Paleni and Sergio Curri. Certain Observations on the Biodeterioration of Museum Materials in India. By S. M. Nair. Nicobium castaneum (Col. Anobiidae), a Pest in Wood Materials and Works of Art. By S. Cymorek. Direct Examination of Biodeteriorated Material Microflora by Scanning Electron Microscopy. By Romano Locci. Role of Marine Fungi in the Biodeterioration of Materials. By E. B. Gareth Jones and J. Irvine. Marine Fouling and Boring Organisms at 200 Feet Depth in Open Water of Monterey Bay, California. By E. C. Haderlie. Organic Derivatives of Tin and Lead in Antifouling Paints. By J. Lorenz. Some New Considerations on the Testing of Antifouling Paints. By P. de Wolf. Inland Laboratory $EM DASH$ Its Role in the Study of Marine Fouling. By Catherine E. Skinner.

DESCRIPTORS: *ENVIRONMENTAL ENGINEERING, LIBRARIES, MICROSCOPES, ELECTRON, MARINE BORERS, (PAINT, Antifouling).

CARD ALERT: 741, 811, 813, 901

323539 ID NO.- EI730523539

15 **BIODETERIORATION OF MATERIALS, VOLUME 2.**

Coursey, D. G.; Assarsson, A.; Bergman, O.; Ogundana, S. K.; Apinis, A. E.; Trentesaux, E.; Multon, J. L.; Guilbot, A.; Poisson, J.; Cabagnier, B.; Chanet, M.

Intl Biodeterioration Symp, 2nd, Proc, Lunteren, Neth, Sep 13-18 1971, 514 p. Sponsored by Organ for Econ Co-op and Dev Publ by Appl Sci Publ Ltd, Barking, Essex, Engl, 1972. Also Available from Halsted Press Div, John Wiley & Sons, Inc, New York.

Following is a continuation of the list of titles and authors: Biodeteriorative Losses in Tropical Horticultural Produce. By D. G. Coursey. Preservation Methods for Chips Used in Wood Pulping. By A. Assarsson and O. Bergman. Post Harvest Decay of Yam Tubers and Its Preliminary Control in Nigeria. By S. K. Ogundana. Mycological Aspects of Stored Grain. By A. E. Apinis. Development of Some Physiological and Biological Characteristics of Wheat Grain During Storage Under Controlled Conditions. By E. Trentesaux, J. L. Multon and A. Guilbot. Microbiological and Biochemical Developments in Rapeseed Cakes During Storage. By J. Poisson, B. Cabagnier and M. Chanet.

DESCRIPTORS *ENVIRONMENTAL ENGINEERING, AGRICULTURAL ENGINEERING, GRAIN, WOOD PRESERVATION.

CARD ALERT: 811, 821, 901

16 **International Biodeterioration Symposium (2nd), Held in Lunteren (The Netherlands) on 13-18 September 1971**

Office of Naval Research London (England) (265000)

Conference rept.
AUTHOR: Harderlie, E. C.
A3311I4 Fld: 11B, 11C, 11E, 71 GRAI7202
2 Nov 71 11p
Rept No: ONRL-C-27-71

Abstract: From 13-18 September 1971 the Second International Biodeterioration Symposium was held in The Netherlands. Seventy papers were presented in the general areas of Biodeterioration of Objects of Art and Sciences, Breakdown Mechanisms, Ecology, Paints, and Paint Films, Protection of Materials, Raw Natural Products, Methology, Timber and Marine Environments. (Author)

Descriptors: (*Paints, Deterioration), (*Materials, Deterioration), Symposia, Fungi, Bacteria, Museums, Wood, Textiles, Tropical regions, Pesticides

Identifiers: *Biodeterioration, Objects of arts, Marine fouling

AD-733 405 NTIS Prices: PC A02/MF A01

17 **International Biodeterioration Symposium (4th) Berlin, Germany, F.R., 28 August to 1 September 1978**

Office of Naval Research, London (England). (265000)

Conference rept.
AUTHOR: Haderlie, E. C.
F0943D2 Fld: 8A, 11F, 11H, 11L, 71L, 47D GRAI7912
20 Nov 78 12p
Rept No: ONRL-C-11-78
Monitor: 18

Abstract: This is a short account of the Fourth International Biodeterioration Symposium discussing briefly the aspects of biodeterioration covered. A complete list of papers presented is included, however, as proceedings are to be published within six months, no papers are discussed. (Author)

Descriptors: *Symposia, *Biodeterioration, *Materials, Enzymes, Fouling, Marine biology, Biocides, Antibiotics, Pesticides, Fuels, Lubricants, Metals, Wood, Polymers, Paints, Synthetic rubber

Identifiers: *Meetings, NTISDODXA

AD-A064 307/2ST NTIS Prices: PC A02/MF A01

207940 ID NO.- EI72X007940

18 **Biodeterioration of tropical hardwood chips in outdoor storage**

GREAVES H

CSIRO, South Melbourne, Victoria, Australia

Tappi v 54 n 7 July 1971 p 1128-33 CODEN: TAPPA

Microbiological examinations have been carried outon preservative treated and untreated wood chips stored in an experimental pile for periods up to 3 mo in a tropical climate in New Guinea. The results indicate that sodium pentachlorophenat e is an effective preservative in preventing biodeterioration both as discoloration of the chips and as decay. Bacteria were the most frequently isolated group of micro- organisms, with Penicillia making up a large percentage of the fungi. 13 refs.

DESCRIPTORS: (*PULP MATERIALS, *Wood), (WOOD, Fungus Attack), (WOOD, Testing).

CARD ALERT: 421, 811

514581 F0037-01246 1

19 **Biological aspects of the protection of wood surfaces.**

Fougerousse, M.

Bois et Forets des Tropiques, 1975, No. 160, 47-56

Languages: Fr Summary Languages: en, es

Discusses biological aspects of the deterioration of wood in exterior uses, with particular reference to the type of fungi specific to paints, varnishes or the wood surface itself. Problem of using protective primers and pigmented decorative finishes are examined, and the distinction between surface protection and wood preservation sensu stricto is emphasized. A comparative table is included showing the natural durability (susceptibility to rot, bluestain and insect attack) of sapwood and heartwood of 4 temperate woods (3 softwoods, 1 heartwood) and 24 tropical hardwoods, when exposed externally.

Descriptors: decay in wood; biological processes; finishes and finishing; preservatives, wood; combined with finishes

DC No: 814.1--844/845 + 844.1/2 ; 829.17/18.

Subject Codes: F8291 F814 ; F844 ; F845

015426 ID NO.- EI70X015426

20 **Biological control of decay in Douglas- fir poles**

RICARD JL; WILSON MM; BOLLEN WB

Royal College of Forestry, Stockholm, Sweden

Forest Products J v 19 n 8 Aug 1969 p 41-5

Strain of Scytalidium fungus, designated FY, was successful in becoming established in over 50 Douglas- fir poles containing active incipient decay at ground- line; growth of strain was followed closely in one pole and was observed to have inhibitory influence on growth of common rot present in pole; results show promise for eventual development of biological control of decay in poles in service. 17 refs.

DESCRIPTORS: (*POLES, *Wood), (WOOD, Decay).

CARD ALERT: 200, 222

21 **Biological Deterioration of Wood in Tropical Environments. Part 2. Marine Borer Resistance of Natural Woods over Long Periods of Immersion**

Naval Research Lab Washington D C (251950)

Final rept.

AUTHOR: Southwell, C. R.; Bultman, J. D.; Forgeson, B. W.; Hummer, C. W.

A1513F1 Fld: 11L, 6C, 71L, 71R USGRDR7105

7 Dec 70 47p

Rept No: NRL-7123

Project: RR104-03-41-5503, NRL-G04-01

See also Part 1, AD-653 856.

Abstract: One hundred and fifteen wood species have been exposed to marine borers in three different tropical waters for periods up to 90 months. Underwater sites were in the Panama Canal Zone and included two oceans and a brackish-water lake. Over 30 species of marine-boring organisms were identified from these waters; their extreme activity in the warm tropical environments provided a very thorough screening test for the woods. Samples have been evaluated separately for resistance to the three principal borer classes--teredo, pholad, and limnoria. Several of the woods were resistant to one or more of the borer types. Some of these resistant species are relatively unknown as marine construction timbers, and in some instances they proved to be more durable than Greenheart, Teak, and other commercial marine woods. The species most resistant to all borers was Dalbergia retusa (Cocobolo), whose oily extract may provide leads to a satisfactory wood preservative. The woods most resistant to each of the different classes of borers are tabulated, with their respective silica content and density included. Silica was shown to be significant only in relation to teredine borers, while wood density was important only with pholads. Woods considered to be of special interest because of findings in the study are discussed individually. (Author)

Descriptors: (*Wood, Degradation), (*Tropical deterioration, Wood), (*Marine borers, Wood), Resistance(Biological), Sea water, Identification, Tropical regions, Crustacea, Mollusca, Panama, Trees

Identifiers: Teredo, Pholad, Limnoria, Panama Canal Zone, Biological deterioration

AD-716 740 NTIS Prices: PC A03/MF A01

22 **Biological Deterioration of Woods in Tropical Environments. Part 3. Chemical Wood Treatments for Long-Term Marine-Borer Protection**

Naval Research Lab Washington D C (251950)

Final rept.
AUTHOR: Southwell, C. R.; Bultman, J. D.
A3682E2 Fld: 11L, 6F, 71R, 71L GRAI7206
9 Dec 70 32p
Rept No: NRL-7345
Project: RR104-03-41-5503, NRL-G04-01
See also Part 2, AD-716 740.

Abstract: Six chemical wood preservatives were selected for evaluation over long periods of exposure in extremely borer-active marine environments. Southern Yellow Pine and Douglas Fir were full-cell pressure-treated with these chemicals and exposed in tropical seas and tropical brackish water for periods up to 90 months. Subsequently, 16 of the natural tropical woods considered best for use with pressure preservatives were combined with whole creosote and exposed in the most borer active of the seawater sites for periods exceeding 4 years. All samples have been removed, sectioned, and rated separately for the three major groups of marine borers: teredo, pholad, and limnoria. The long-term results show that heavy treatments of whole creosote and chromated copper arsenate (CCA, type A) are very effective preservatives for Southern Pine exposed in seawater, while the CCA was the singularly most effective treatment against the brackish-water Psiloteredo. Some of the most promising results were obtained with combinations of a few relatively limnoria-resistant tropical woods with a teredo-effective creosote pressure treatment. (Author)

Descriptors: (*Wood, *Marine borers), Environmental tests, Oceans, Tropical regions, Crustacea, Molluscacides, Creosote, Arsenic compounds, Copper compounds

Identifiers: Teredo, Pholad, Limnoria, *Biodeterioration, *Wood perservatives, Copper arsenates, Pine wood, Fir wood

AD-736 182 NTIS Prices: PC A03/MF A01

23 **Biological Deterioration of Woods in Tropical Environments. Part 4. Long-Term Resistance to Terrestrial Fungi and Termites**

Naval Research Lab Washington D C (251950)

Final rept.
AUTHOR: Southwell, Charles R.; Bultman, John D.
C1155D3 Fld: 6F, 11L, 71L, 71R, 57H GRAI7315
9 Apr 73 28p
Rept No: NRL-7546
Project: RR104-03-41-5503, NRL-G04-01
Monitor: 18
See also report dated 9 Dec 70, AD-736 182.

Abstract: The report describes the biodegradation of treated and untreated woods in the marine and terrestrial environments of the Panama Canal Zone. Presented are the final results of the terrestrial studies for exposure periods up to 13 years at three jungle exposure sites. One hundred fifteen natural woods and five wood preservatives are evaluated for resistance to subterranean termites and to above-ground and below-ground fungal decay. (Modified author abstract)

Descriptors: (*Wood, Degradation), (*Fungi, Wood), (*Isoptera, Wood), Environmental tests, Tropical regions, Preservation, Quinones, Creosote, Silica gel

Identifiers: *Biodeterioration, *Wood preservatives, N

AD-761 993 NTIS Prices: PC A03/MF A01

24 **Boron-Diffusion Treatment of Packaged Utility-Grade Lumber Arrests Decay in Storage**

Western Forest Products Lab., Vancouver (British Columbia).

Information rept.
AUTHOR: Roff, J. W.
C3093G1 Fld: 11L, 71R* GRAI7416
Apr 74 19p*
Rept No: VP-X-125
Monitor: 18

Abstract: Protection against spread of decay in packages of unseasoned utility-grade lumber, containing pockets of unsound wood, was attained during a 24-month test storage period using a boron-salt-diffusion process. Retentions in excess of 0.5% boric-acid equivalent were noted at the mid-sections of 1152 pieces of industrially-treated western hemlock and amabilis fir lumber following outside storage in Canada and in England. Eleven species of fungi were identified in the lumber. The treatment was also effective against a local attack by dampwood termites.

Descriptors: *Lumber, *Protective treatments, *Storage, Degradation, Termites, Fungus deterioration, Sodium borates, Diffusion, Test methods, Exposure, Packaging, Effectiveness, Wood preservatives, Canada

Identifiers: NTISCVFPL

PB-232 879/7 NTIS Prices: PC A02/MF A01

O44058 ID NO.- EI70X144058

25 **Brown- stain development in stored chips of spruce and balsam fir**

SHIELDS JK
Canadian Forestry Service, Ottawa, Ont
Tappi v 53 n 3 Mar 1970 p 455-7

The intensity of discoloration increased and the pH of the chips decreased with increasing time in storage. Succession of microorganisms appeared to be influenced by the pH of the stored wood ships. Although dark- colored hyphae contributed to surface discoloration of chips, brown discoloration was not caused primarily by dark hyphae growing in the wood but apparently resulted from chemical activities. None of the fungi from this area of the pile caused high wood substance loss in laboratory tests, although a %Paecilomyces sp. and Trichoderma viride Pers. ex Fr. were able to cause slight decay of birch wood.

DESCRIPTORS: (*PULP MATERIALS, *Storage), (WOOD, Decay), (WOOD, Fungus Attack), (PULP MATERIALS, Wood),

CARD ALERT: 811

26 **CHANGES IN WOOD MICROSTRUCTURE THROUGH PROGRESSIVE STAGES OF DECAY**

Forest Products Lab Madison Wis (141700)

Forest Service research paper
AUTHOR: Wilcox, W. Wayne
5002L4 Fld: 11L, 6F USGRDR6820
Jul 68 50p*
Rept No: FSRP-FPL-70
Prepared in cooperation with Wisconsin Univ., Madison.

Abstract: The sequence of changes observed microscopically that occurred in wood throughout successive stages of decay was studied in the sapwood of a hardwood, sweetgum (Liquidambar styraciflua L.), and of a softwood, southern pine (Pinus sp.). The fungi used were Polyporus versicolor L. ex Fr., a white-rot fungus, and Poria monticola Murr., a brown-rot fungus. Light microscopy, plus the techniques of polarization and ultraviolet-absorption microscopy, was used to make the observations on sections 4 microns thick cut from celloidin-embedded specimens. (Author)

Descriptors: (*Wood, *Fungus deterioration), Microscopy, Degradation, Cell wall, Penetration, Enzymes, Lignin, Weight, Non-destructive testing

Identifiers: Softwood, Hardwood, Sweetgum, Southern pine

AD-673 493 CFSTI Prices: PC A03/MF A01

27 **CHEMICAL MEANS OF PROTECTING NONMETALLIC MATERIALS FROM ATTACK BY MICROORGANISMS**

Army Foreign Science and Technology Center Washington D C (038300)
AUTHOR: Melnikov, N. N.; Vladimirova, I. L.; Ivanova, S. N.
6231H1 Fld: 6L, 11G, 923 USGRDR6915
8 May 69 16p
Rept No: FSTC-HT-23-034-69
Project: FSTC-92236282301
Trans. of Khimicheskaya Promyshlennost (USSR) n1 p81-85 1960.

Abstract: A review is given of various antiseptics which are suggested for protection of susceptible materials of plant and animal origin as well as certain synthetic polymers from attack by microorganisms. Antiseptics should possess fungicidal and bactericidal properties against a wide range of microorganisms, chemical and physical stability, freedom from odor and color, low volatility and low solubility in water, and should not affect the chemical or physical properties of the treated material or the quality of the article. In addition they should be inexpensive and have low toxicity for humans. Antiseptics discussed include: 'phenols, 8-oxyquinoline derivatives, naphthenates, nitro- and halogen derivitives of benzene, organic and inorganic mercury and tin compounds, and quaternary ammonium salts. (Author)

Descriptors: (+Tropical deterioration, Reviews), (+Fungicides, Tropical deterioration), (+Germicides, Tropical deterioration), Plastics, Glass, Fungus deterioration, Organic materials, Leather, Synthetic rubber, Wood, Phenols, Nitrophenols, Chlorine compounds, Halogenated hydrocarbons, Copper compounds, Complex compounds, Mercury compounds, Tin compounds, Ammonium compounds, USSR

Identifiers: Biodeterioration, Phenol/pentachloro, Copper/quinolinato, Benzene/dinitro-fluoro, Stannane/acetoxy-tributyl, Stannane/acetoxy-triphenyl, Translations

AD-688 534 CFSTI Prices: HC A02/MF A01

28 877144 ID NO.- EI781077144
CHIPPING WESTERN HEMLOCK DECAYED BY WHITE-ROT FUNGI $EM DASH$ 1.
Hunt, Kenneth
Can For Serv, Vancouver, BC
Pulp Pap Can v 79 n 6 Jun 1978 p 69-70 CODEN: PPCAAA
In the reported experimental program, western hemlock trees $left bracket$ Tsuga heterophylla (Raf.) Sarg. $right bracket$ decayed by stringy rot (Echinodontium tinctorium Ell. and Ever.) from Enderby, B. C. (living), and Mica Creek, B. C. (dead floating), were sawn into cants and chipped in an experimental disk chipper. Results of screening trials using the WFPL chip-quality analytical procedure indicated that incipient-decay wood gave similar size distributions to sound wood, while advanced-decay wood gave less accepts and more pin chips and fines than sound wood. One-percent caustic solubilities used as decay indicators showed that incipient decay was distributed mainly in the fines fraction, while advanced decay was present throughout all fractions, but especially in the fines. Screening to remove pin chips and fines will also remove some decayed wood. 6 refs.
DESCRIPTORS: (+PULP MATERIALS, +Wood), (PAPER AND PULP MILLS, Woodrooms), (WOOD, Fungus Attack),
IDENTIFIERS: WESTERN HEMLOCK, WOOD CHIPPING
CARD ALERT: 811

29 **Comparison of Wood Preservatives in Stake Tests**

Forest Products Lab Madison Wis (141700)

Forest Service research note
AUTHOR: Gjovik, L.; Davidson, H. L.
A4191G4 Fld: 11L, 71R GRAI7211
1972 92p*
Rept No: FSRN-FPL-02/72

Abstract: Reported are results on test stakes of southern pine sapwood 2 by 4 by 18 inches in size, treated by pressure and nonpressure processes, in decay and termite exposure in various climates. Also included in some of the tests are smaller pine stakes and those of treated and untreated plywood, modified woods, laminated paper plastic, and pine infected with Trichoderma mold. Preservatives such as coal-tar creosote and petroleum oils containing copper naphthenate, zinc naphthenate, phenyl mercury oleate, and pentachlorophenol have added a few months to 4 years to the life of the untreated stakes. Some waterborne preservatives have provided less protection to the stakes than the standard preservative oils. (Author)

Descriptors: (*Wood, *Protective treatments), Environmental tests, Deterioration, Fungusproofing, Isoptera

Identifiers: *Wood preservatives, Pine wood, Coptotermes formosanus, Formosan termites, Biodeterioration

AD-740 374 NTIS Prices: PC A05/MF A01

30 **Comparison of Wood Preservatives in Stake Tests. (1973 Progress Report)**

Forest Products Lab Madison Wis (141700)

Forest Service research note
AUTHOR: Gjovik, L. R.; Davidson, H. L.
C2495K4 Fld: 11L, 2F, 71R GRAI7409
1973 69p
Rept No: FSRN-FPL-02/73
Monitor: 18
See also report dated 1972, AD-740 374.

Abstract: Southern pine untreated control stakes have had an average life of about 1 year in the Canal Zone; 1.8 to 3.6 years in Mississippi, Florida, and Louisiana; and about 6 years in Wisconsin. Superficial treatments by 3-minute dipping and brushing with preservatives such as coal-tar creosote and petroleum oils containing copper naphthenate, zinc naphthenate, phenyl mercury oleate, and pentachlorophenol have added a few months to 4 years to the life of the untreated stakes. Some waterborne preservatives have provided less protection to the stakes than the standard preservative oils, such as coal-tar creosote and pentachlorophenol solutions, when preservative retentions have corresponded to those in commercial use. Other waterborne preservatives have shown excellent results in the exposure tests. (Modified author abstract)

Descriptors: *Wood, *Protective treatments, Environmental tests, Biodeterioration, Fungusproofing, Tropical regions

Identifiers: Pine wood, FPL

AD-774 786/8 NTIS Prices: PC E04/MF A01

31 **Comparison of Wood Preservatives in Mississippi Post Study: 1975 Progress Report**

Forest Products Lab Madison Wis (141700)

Forest Service research note
AUTHOR: Gjovik, L. R.; Davidson, H. L.
C5084A3 Fld: 11L, 71R GRAI7520
1975 18p
Rept No: FSRN-FPL-01
Monitor: 18
See also report dated 1973, AD-773 424.

Abstract: To evaluate the effectiveness of various wood preservatives, service records of treated southern yellow pine fenceposts installed on the Harrison Experimental Forest, Saucier, Miss., have been compared periodically since 1936. In contrast to the 3.3 years average life of the untreated control posts, nine preservatives, after approximately 37 years, have had less than 60 percent of their posts fail and indicate an average life of well over 30 years. Two groups of treated posts installed in 1949 have failed completely: No. 2 distillate with an average life of 6.2 years and Wyoming residual with an average life of 9.0 years. Preservatives performing better in this installation include 15 groups with no failures after 25 years and 16 groups with over 10 percent failures, permitting estimated average life values of 23 to 38 years.

Descriptors: *Wood, *Preservation, *Protective treatments, Copper compounds, Chromates, Creosote, Coal tar, Arsenic compounds, Zinc compounds, Sulfates, Phenols, Naphthalenes, Enviromental tests, Biodeterioration

Identifiers: Pine wood, Wood posts, Phenol/pentachloro, Phenol/tetrachloro, Copper chromates, Copper sulfates, NTISDODFPL

AD-A013 543/4ST NTIS Prices: PC A02/MF A01

32 **Comparison of Wood Preservatives in Stake Tests: 1975 Progress Report**

Forest Products Lab Madison Wis (141700)

Forest Service research note
AUTHOR: Gjovik, L. R.; Davidson, H. L.
C5084A4 Fld: 11B, 2F, 71R GRAI7520
1975 72p
Rept No: FSRN-FPL-02
Monitor: 18
See also report dated 1973, AD-774 786.

Abstract: Reports results on test stakes of southern pine sapwood 2 by 4 by 18 inches in size, treated by pressure and nonpressure processes and installed by the Forest Products Laboratory and cooperators in Decay and termite-exposure sites at various times since 1938 at Saucier, Miss.; Madison, Wis.; Bogalusa, La.; Lake Charles, La.; Jacksonville, Fla.; and the Canal Zone, Panama. Superficial treatments by 3-minute dipping and brushing with preservatives such as coal-tar creosote and petroleum oils containing copper naphthenate, zinc naphthenate, phenyl mercury oleate, and pentachlorophenol have added a few months to 4 years to the life of the untreated stakes. Some waterborne preservatives have provided less protection to the stakes than the standard preservative oils, such as coal-tar creosote and pentachlorophenol solutions, when preservative retentions have corresponded to those in commercial use.

Descriptors: *Wood, *Preservation, *Protective treatments, Environmental tests, Termites, Insecticides, Biodeterioration, Tables(Data), Copper compounds, Chromates, Creosote, Coal tar, Arsenic compounds, Zinc compounds, Sulfates, Phenols, Naphthalenes

Identifiers: Pine wood, Wood posts, Phenol/pentachloro, Copper chromates, NTISDODFPL

AD-A013 544/2ST NTIS Prices: PC A04/MF A01

33 **COMPARATIVE DECAY RESISTANCE OF HEARTWOOD OF NATIVE SPECIES**

Forest Products Lab., Madison, Wis. (141 700)

Research note.
3054B1 Fld: 2F, 11 USGRDR6707
Jan 67 2p
Rept No: FPL-0153
Monitor: 18
Revised from U. S. Forest Products Laboratory rept. no. 68.

Abstract: The report gives the general resistance to decay of a number of native wood species grown in the United States, and some factors affecting decay resistance. (Author)

Descriptors: (*Fungus deterioration, Resistance(Biological)), (*Wood, Fungus deterioration), Trees, Degradation, Preservation

AD-646 567 CFSTI Prices: PC A02/MF A01

824603 M0057-01421 1

34 **Compartmentalization of decay in trees.**
Shigo, A. L. ; Marx, H. G.
USDA Forest Service, Durham, N. Hamp., USA.
USDA Forest Service Agriculture Information Bulletin, 1977 . No. 405, 73 pp.
Languages: En
72 col. pl.
The publication, based on 16 yr of research involving complete dissections of c. 10 000 trees, mostly deciduous hardwoods, at least 1000 conifers and 17 tropical spp., shows how most columns of diseased and decayed wood associated with trunk wounds are compartmentalized. The CODIT (compartmentalization of decay in trees) system, which acts as a code for understanding the development of a wide variety of defects in most tree spp., is described.
Descriptors: trees; diseases; compartmentalization of decay
Identifiers: USA
Subject Codes: M3400

35. Withdrawn.

36 **Controlling Biological Deterioration of Wood with Volatile Chemicals. Interim Report 1, January 1974--December 1976**

Oregon State Univ., Corvallis. (4947000)
AUTHOR: Graham, R. D.; Corden, M. E.
D3184G3 Fld: 11L, 6F, 71R, 57P, 71L GRAI7720
Feb 77 69p
Monitor: 18

Abstract: Biological procedures were developed to obtain fungi from Douglas-fir poles to distinguish between decay and nondecay fungi and to detect preservative or fumigant depletion so that supplemental treatments could be applied before significant reductions in pole strength occurred. Electrical resistance devices appeared capable of detecting advanced decay and measuring fumigant vapor concentrations in poles and will receive further study. Eight decay and 29 nondecay fungi were obtained from 3,111 Douglas-fir poles in western Oregon. Decay fungi rarely were obtained whereas nondecay fungi frequently were obtained from cedar and southern pine poles. Of the five most prevalent nondecay fungi in Douglas-fir poles, one was quite resistant to chloropicrin. Since this fungus inhibits the growth of a decay fungus in wood, the potential exists for a combined chemical-biological control of internal decay. (ERA citation 02:038437)

Descriptors: +Fumigants, +Wood, Bacteria, Biodegradation, Coastal regions, Decomposition, Fungi, Mechanical structures

Identifiers: ERDA/550700, Wood preservatives, Fir wood, NTISERDAP

EPRI-EL-366 NTIS Prices: PC A04/MF A01

37 **Control of Wood-Rotting Fungi (From 1 October, 1957)**

Syracuse Univ N Y (339 600)
AUTHOR: JENNISON, M.W.
E1583K2 Fld: 6F GRAI7816
31 Dec 58 11p
Rept No: tr9
Contract: nonr66906
Monitor: 18
Distribution limitation now removed. NOTE: Only 35mm microfilm is available. No microfiche.

Abstract: No abstract available.

Descriptors: *Fungus deterioration, Amino acids, Carbohydrates, Control, Growth(Physiology), Nuclear isomers, Nutrition, Polymers, Vitamins

Identifiers: *Fungi, *Pest control, NTISDODXD

AD 210 745/6ST NTIS Prices: PC A02/MF A01

38 **Control of Wood-Rotting Fungi**

Syracuse Univ N Y (339 600)
AUTHOR: JENNISON, M.W.; MILAZZO, FRANCIS; PERRITT, ALEXANDER
F1592F1 Fld: 6F, 11L GRAI7816
31 Dec 59 21p
Contract: nonr66906
Monitor: 18
Distribution limitation now removed. NOTE: Only 35mm microfilm is available. No microfiche.

Abstract: No abstract available.

Descriptors: *Fungi, *Fungus deterioration, *Wood, Carbohydrates, Control, Culture media, Growth(Physiology), Nutrition, Physiology, Synthesis

Identifiers: NTISDODXD

AD-232 662/7ST NTIS Prices: PC A02/MF A01

355757 ID NO.- EI731155757

39 **COOLING SYSTEMS DEFENSES AGAINST MICROBIOLOGICAL ATTACK.**

Shair, Salem
Chemed Corp
Power Eng (Barrington, Ill) v 77 n 9 Sep 1973 p 68-71
CODEN: POENAI

Biological fouling of industrial cooling water systems results from the excessive growth and development of three of the lower forms of plant life $EM DASH$ algae, fungi and bacteria. Methods of control include pretreatment of wood in cooling towers or use of microbicides to kill or inhibit the growth of organisms.

DESCRIPTORS: *WATER BACTERIOLOGY, WATER COOLING SYSTEMS.
CARD ALERT: 445, 616

40 **Decay and Its Prevention**

Oregon State Univ. Extension Service, Corvallis. Marine Advisory Program.*National Oceanic and Atmospheric Administration, Rockville, Md. Office of Sea Grant.
AUTHOR: Condon, Edward J.; Graham, Robert D.
C5942L2 Fld: 13J, 11L, 47A, 71L, 71R, 86M GRAI7606
Sep 75 7p
Rept No: SG-23
Monitor: NOAA-75120406

Abstract: Accidental damage to the hull, marine-borer attack, and fungal decay are the commonest reasons for repairing wood boats. Physical damage and marine-borer attack are usually obvious, but decay is not easy to detect. Knowing the causes of decay helps in recognizing its effects, hopefully early enough to avoid the need for expensive repairs. This article deals with the problem of decay and rot, the factors affecting decay, the ways to detect decay, and ways to prevent decay.

Descriptors: *Boats, *Biodeterioration, *Fungus deterioration, *Wood, Damage, Hulls(Structures), Wood preservatives, Marine borers, Decay, Maintenance, Fungus proofing

Identifiers: Sea Grant program, NTISCOMNOA

PB-248 370/9ST NTIS Prices: PC A02/MF A01

41 **Decay of Ponderosa Pine Sawtimber in the Black Hills**

Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colo.

Forest Service Research Paper
AUTHOR: Hinds, Thomas E.
A1965K3 Fld: 2F, 11L, 52H, 71R GRAI7110
Jan 71 17p
Rept No: FSRP-RM-65
Paper copy available from Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colo. 80521 Free.

Abstract: A defect study of 1,725 logs cut from 498 trees provided the basis for determining the relationships between tree age, volume, and defect. Red rot was responsible for 8.6 percent, brown rots 7.3 percent, and other defects 3.3 percent of the total 19.2 percent defect. Red rot, found in 68 percent of all trees, was the most important cause of defect. (Author)

Descriptors: (*Pine wood, Decay), Structural timber, Defects, Fungus deterioration, Sawmills, Quality, Age, Volume, Statistical data, South Dakota, Theses

Identifiers: Pinus ponderosa

PB-198 098 NTIS Price: MF A01

80141753 80055275 Holding Library: AGL

42 Decay of the Australian house flooring timbers Pinus radiata D. Don and Eucalyptus regnans F. Muell. by the dry rot fungus Serpula lacrymans Gray
Thornton, J.D.;
Melbourne, , CSIRO.
Australian forest research. v. 9 (2) , July 1979. p. 137-142. ill.
ISSN 0004-914X:
NAL: 99.8 AU76
Languages: ENGLISH
9 ref.
Geographic Location: Australia
Subfile: OTHER USDA;
Document Type: ARTICLE
Section Headings: PLANT DISEASES-FUNGAL(F831); FOREST PRODUCTS-WOOD(K510)

855415 ID NO.- EI780855415

43 **DEFORMATION OF WOOD BEAMS UNDER CONSTANT LOAD IN DAMP ENVIRONMENTS CONDUCTIVE TO DECAY.**
Ifju, Geza; Stipes, Roland J.; Johnson, Jay A.; Lei, Young-Kong
Va Polytech Inst and State Univ, Blacksburg
Environ Degradation of Eng Mater, Proc of Conf, Va Polytech Inst and State Univ, Coll of Eng, Blacksburg, Oct 10 12 1977 Publ by Lab for the Study of Environ Degradation of Eng Mater, Blacksburg, Va, 1977 p 633-641
Deformation behavior of decaying wooden beams under constant load was studied. Small ponderosa pine beams were inoculated with a brown rot wood destroying fungus, loaded to 25% of short term ultimate stress and kept in an environment favorable to the microorganism. The results show that wood beams as structural elements used in damp environments may suffer excessive creep under constant load and may even collapse if no precautions are taken. A relatively small amount of preservative can prevent beams in damp environments from attack by wood destroying fungi. Wood beams exposed to decay prior to installation are more susceptible to collapse under load in damp environments than sound beams in similar conditions. If loading conditions change during the service life of decaying wood beams they may cause an increase in creep rate.
DESCRIPTORS: (*BEAMS AND GIRDERS, *Wood), WOODEN CONSTRUCTION, (WOOD, Decay).
CARD ALERT: 405, 811

138254 ID NO.- EI71X038254

44 **Degradation of wood cell components by the extracellular enzymes of Coniophora cerebella**
KING NJ
Forest Products Res Lab, Princes Risborough, England
Biodeterioration of Materials, Microbiological and Allied Aspects, Proc of 1st Int Biodeterioration Symp Sept 9 14 1968, Southampton Univ, Engl, p 558-64
Extracellular enzymes degrading cellulose, 4 O methylglucuronoxylan, glucomannan, starch and ! 1 to 3 glucan have been isolated from Coniophora cerebella and some of their properties studied.
DESCRIPTORS: (*WOOD, *Fungus Attack).
CARD ALERT: 000

605089 ID NO. FI760105089

45 **DETERIORATION OF PULPWOOD BY FUNGI AND ITS CONTROL.**

Smith, Roger S

Can For Serv, West For Prod Lab, Vancouver, BC

Trans Tech Sect Can Pulp Pap Assoc v 1 n 2 Jun 1975 p 33-37 CODEN: TSCPDL

Brown and white rot fungi, sapstain fungi, thermophilic fungi and moulds are described as deteriorating agents in stored pulpwood logs and chips. The detection of these microorganisms, and their effects and economic significance on the manufacture of pulp, is considered. The catastrophic effect of pulping wood severely decayed by brown-rot fungi is shown. The possibility of controlling the deterioration of pulpwood by fungi is discussed. 16 refs.

DESCRIPTORS: (*PULP MATERIALS, *Wood), (WOOD, Fungus Attack)

IDENTIFIERS: PULPWOOD CHIPS, PULPWOOD LOGS

CARD ALERT: 811

219942 ID NO.- EI72X019942

46 **Determining loss of wood substance after fungal attack. A comparison of two methods**

FEIST WC; ESLYN WE; SPRINGER EL; HAJNY GJ

Tappi v 54 n 8 Aug 1971 p 1271-3 CODEN: TAPPA

Loss of wood substance after fungal attack was determined on the same sample by the two following methods- direct weighing and specific gravity loss determinations before and after fungal attack. The two methods gave almost equivalent results after water- soluble extractives produced by the fungi were removed from the decayed wood by water- soaking. The specific gravity method reliably determined losses in wood substance caused by fungal degradation such as occur in pulpwood chips stored for long periods in large piles. 4 refs.

DESCRIPTORS: (*PULP MATERIALS, *Storage), (WOOD, Analysis), (WOOD, Fungus Attack),

CARD ALERT: 811

47 **DETERMINING RESISTANCE TO SOFT-ROT FUNGI**

Forest Products Lab., Madison, Wis. (141 700)

Research paper
AUTHOR: Duncan, C. G.;
0444D1 Fld: 6C, 11L USGRDR6610
Dec 65 15p
Rept No: FPL-48

Abstract: A laboratory procedure is outlined that incorporates techniques found to promote soft rot by several fungi. This procedure employs either an agar or a soil substrate. Also presented are the principal findings of experiments underlying the procedure. Results of tests conducted according to the suggested procedure are illustrated. The overall decay resistance of the softwoods typically was greater than that of hardwoods. The levels of decay in softwoods, however, were substantially higher than previously obtained. There was a tendency for decay in soil to be somewhat greater than on agar; however, a particular preference for either substrate was indicated only in a few instances. (Author)

Descriptors: (*Wood, Fungus deterioration), (*Fungus deterioration, Resistance(Biological)), Fungi, Degradation, Soils, Culture media, Test methods, Fungusproofing

PB-169 104 CFSTI Prices: PC A02/MF A01

79112493 80727358 Holding Library: AGF; AGF; AGL

48 Deuteromycetes and selected ascomycetes that occur on or in wood

Stewart, E. L.

Madison, Wis. , Forest Products Laboratory , 1979 WISCONSIN

165 p. ; 27 cm. --

United States. Forest Products Laboratory. U.S.D.A. Forest Service general technical report FPL ; 24

NAL: aSD11.A57 No.24

Languages: ENGLISH

Subfile: USDA .(US DEPT. AGR); USDA .(US DEPT. AGR);

Government Source: FEDERAL

Document Type: MONOGRAPH; BIBLIOGRAPHY

Descriptors: Ascomycetes--Bibliography ; Wood-decaying fungi--Bibliography ; Fungi imperfecti--Bibliography ;

Section Headings: FOREST INDUSTRIES(3520); PLANT FUNGUS DISEASES AND CONTROL(4505)

1155832 F1003-01188 1

49 **Durability and preservation of tropical woods.**
More effective use of tropical woods.
Matsuoka, S.
Mokuzai Kogyo (Wood Industry), 1977, 32,11, 51-55
See Also: 1155823 F1003-01179
Languages: Ja
18 ref., 2 pl.

Species are rated according to their resistance to wood-destroying fungi and a bark beetle, and according to the ease of impregnation and penetration of preservatives.

Descriptors: tropical timbers; durability of wood, natural; decay in wood; resistance; preservative-treated wood; preservative penetration and fixation

Identifiers: Japan ; Tropical
DC No: FPA 5.0 + (213) ; See Mokuzai Kogyo 32 (11) (1977)
Subject Codes: F10213 F1050

50 **ECOLOGY AND THERMAL INACTIVATION OF MICROBES IN AND ON INTERPLANETARY SPACE VEHICLE COMPONENTS SECOND QUARTERLY PROGRESS REPORT, JUL. 1 - SEP. 30, 1965**

Public Health Service, Washington, D. C. Div. of Environmental Engineering and Food Protection.
AUTHOR: Angelotti, R. ; Campbell, J. E.; Crawford, R. G.; Gilchrist, J. E.; Hall, H. E.
0843J2 Fld: 6F STAR0406
Oct 65 23p
Rept No: NASA-CR-69345
Contract: NASA ORDER R-36

Descriptors: *Bacillus, *Bacteria, *Contamination, *Toxicity, Acetone, Agar, Balsa, Component, Ecology, Filter, Interplanetary, Microorganism, Pad, Plastic, Plate, Recovery, Solubility, Space vehicle, Spore, Surface, Thermal, Wood

N66-15381 CFSTI Prices: PC A02/MF A01

51 **EFFECT OF ANTISEPTICS ON SOIL MICROFLORA DURING SOIL BURIAL TESTING**

Army Foreign Science and Technology Center Washington D C (038300)
AUTHOR: Petrenko, I. A.
6685H2 Fld: 6M, 6F, 908 USGRDR6922
9 Sep 69 10p
Rept No: FSTC-HT-23-299-69
Project: FSTC-0423100
Trans. of Akademiya Nauk SSSR. Sibirskoe Otdelenie. Izvestiya, Seriya Biologo-Meditskinskikh, n3 p72-75 1968.

Abstract: Specific ecological conditions are created in soil containing antiseptics, which determine the nature of the microflora which develop. Examination of soil surrounding buried antiseptic-treated wood has revealed that the toxicity of antiseptics is maximal during the first year, and decreases with time. The antiseptics FKhM-7751 and copper naphthenate are toxic for Chaetomiumelatum and selectively affect Opheostomacoeruleum, Acrostalagmus cinnabarinus, Cladosporium herbarum, Micelium sterilis. The continuous occurrence of the fungi Monotospora sp., Monilia sitophela, Fusarium sp. and bacteria Vibrio vulgaris in soil containing antiseptics, suggests that they are very resistant species. (Author)

Descriptors: (*Germicides, Microorganisms), (*Microorganisms, Soils), (*Wood, Protective treatments), Ecology, USSR, Wood, Effectiveness, Bacteria, Fungi

Identifiers: Translations, Antiseptic treated wood, Copper naphthenates, FKhM-7751 antiseptic

AD-694 414 CFSTI Prices: HC A02/MF A01

138251 ID NO - EI71X038251

52 **Effect of carbon to nitrogen ratio of substrate on the growth, composition, cellulase production, and wood-destroying capacity of Polystictus versicolor**

LEVI MP; COWLING EB

Hickson's Timber Res and Development Lab, Castleford, Yorkshire,

Biodeterioration of Materials, Microbiological and Allied Aspects, Proc of 1st Int Biodeterioration Symp Sept 9-14 1968, Southampton Univ, Engl, p 575-83

The rate of growth, N content, composition, cellulase production, and wood-destroying capacity of the common white-rot fungus Polystictus versicolor were determined on substrates with a wide range of C to N ratios. In synthetic liquid media N content of mycelium varied from 8.2% of the dry weight of mycelium at C to N ratio of 4 to 1 to 0.1% at a C to N ratio of 1600 to 1. At C to N ratios of less than 800 to 1, the maximum amount of growth of the fungus was limited by the amount of available carbon (C) not nitrogen (N).

DESCRIPTORS: (+WOOD, +Decay), CELLULOSE, BIOENGINEERING,

CARD ALERT: 000

964185 ID NO.- EI790864185

53 **ENVIRONMENTAL DETERIORATION OF PVC: MICROBIAL ATTACK.**

Cadmus, Eugene L.

Ventron Corp, Beverly, Mass

SPE, Ont Sect, Reg Tech Conf on P. V. C. Perform in Var Environ, Toronto, Ont, Oct 24-25 1978 Publ by SPE, Greenwich, Conn, 1978 p 81-84

Resistance to microbial attack, the destructive action of fungi and bacteria, is often ignored in the design of plastic materials. Many formulators consider polymers to be inert to the biological effects of environmental exposures. Many workers have reported that synthetic polymers are not susceptible to microbial attack. However, there are two factors which alter the situation. The first is that the polymers are seldom used alone. They are combined with formulating ingredients, such as plasticizers, pigments, fillers and stabilizers; and they are used in multi-component constructions involving susceptible materials $EM DASH$ 90 cotton, paper, wood etc. The second contributing factor is that the severity of microbial $left double quote$ attack $right double quote$ can range from complete functional failure, through embrittlement and cracking, to the stains, odors and defacement of surface growth. Resistance to microorganisms can be improved by using non-migratory plasticizers and avoiding the most susceptible ones like adipates, azelates and high levels of epoxidized soybean oil. The biocides used in PVC to prevent the growth of microorganisms include organometallic compounds such as trialkyl tin oxides, arsenicals, and organic complexes of antimony or copper; some organic sulfur compounds are also used, as are quaternary ammonium compounds.

DESCRIPTORS: (+POLYVINYL CHLORIDE, +Fungus Resistance), BACTERIOLOGY, (PLASTICS, Environmental Impact), BIOCHEMICAL ENGINEERING,

CARD ALERT: 461, 817, 901

410670 ID NO.- EI740210670

54 **EVALUATING CHEMICALS FOR CONTROLLING BIODETERIORATION OF STORED WOOD CHIPS.**

Eslyn, Wallace E.

Forest Prod Lab, Madison, Wis

For Prod J v 23 n 11 Nov 1973 p 21-25 CODEN: FPJOAB

Thirty chemicals or chemical mixtures were evaluated for their effectiveness in controlling fungal degrade in wood chips during outside storage. Twenty-three of the chemicals proved effective at various concentrations. 15 refs.

DESCRIPTORS: +WOOD PRESERVATION, WOOD WASTE, CHEMICALS,

CARD ALERT: 803, 811

594865 F0037-05811 1

55 **Experimental preservative treatment of three tropical hardwoods by double-diffusion processes.**

Johnson, B. R. ; Gonzalez T., G. E.

Forest Products Journal, 1976, 26,1, 39-46

Languages: En

18 ref.

Describes laboratory experiments in Wisconsin to ascertain the most effective type of double-diffusion preservative treatment for preventing severe decay and insect attack in three Costa Rican hardwoods viz. Prioria copaifera, Schizolobium parahybum and Brosimum utile, at various stages of seasoning. Tested variations in preservative treatment included the use of solutions of different concentrations, at different temperatures, and for different soaking periods. Some wood samples were incised to a depth of 5/8 inch. Duration of soaking had the most pronounced effect on preservative retention, but the time required for a specific degree of retention depended on the condition and preparation of the sample and on the concentration of the solution. With all species, nearly all tested modifications of the double-diffusion process gave retentions of preservatives considered to be sufficient to protect wood against decay and insect attack, though field trials are necessary to verify these results.

Descriptors: Prioria; copaifera; Schizolobium; parahybum; Brosimum; utile; preservation, wood etc.; non-pressure treatments; pre-treatments

DC No: 841.25--176.1(213).

Subject Codes: F8412

56 **FACTORS INFLUENCING DECAY OF UNTREATED WOOD**

Forest Products Lab., Madison, Wis. (141 700)

Research note.
3054F1 Fld: 2F, 11 USGRDR6707
Jan 67 3p
Rept No: FPL-0154
Monitor: 18

Abstract: The various conditions that have been shown by study and experience to influence the decay of wood are discussed. These particularly touch on the fungi's need for moisture, air, and suitable temperatures, and how control measures usually hinge on restricting at least one of these. (Author)

Descriptors: (*Wood, Fungus deterioration), Degradation, Moisture, Air, Temperature, Trees, Drying, Buildings, Control

AD-646 568 CFSTI Prices: PC A02/MF A01

57 **FACTORS IN THE DEVELOPMENT OF FUNGUS-PROOF BARRIER MATERIALS. I. TREATMENTS FOR KRAFT PAPER. II. PLASTIC AND ASPHALT LAMINATES**

Pitman-Dunn Research Labs Frankford Arsenal Philadelphia P (283750)

Technical research articles
AUTHOR: Ross, Sidney H.; Teitell, Leonard
2592H2 Fld: 13C, 6E, 11H, 11K, 13G USGRDR6612
1966 2p
Rept No: A66-5
Project: da-1C024401A329
Availability: Published in Developments in Industrial Microbiology, v7 p179-200 1966. Copies to DDC users only.

Abstract: Treatments for Kraft Paper: Six commercial fungicides were added to kraft paper and fungus resistance determined by soil burial and agar surface methods. Influence of aqueous leaching and storage at elevated temperature on fungus resistance of treated papers was determined. It was found that fungus resistance is dependent on the concentration per unit area of the sheet, not on concentration of fungicide per unit weight. A number of fungitoxic compounds were compared for protection provided paper. Effects of molds (originating from wood containers) on adjacent kraft paper or barrier material liners were investigated. Liners made of fungicidally treated paper remained in good condition even though growth was present on adjacent untreated wood surface. Untreated kraft paper or barrier material used to line treated wood boxes was not deteriorated. Asphalt and Plastic Laminates: Untreated kraft paper and kraft paper treated with fungicides were made into laminates with polyethylene and tested by soil burial and agar surface methods. The polyethylene layers had only a very slight effect on delaying or decreasing microbial attack on the untreated paper, but did aid in further inhibiting fungal deterioration of treated paper. If a fungicide was added to the asphalt but not the paper, there was complete protection against fungi even though no fungicide was added to the asphalt. (Author)

Descriptors: (*Fungusproofing, *Containers), (*Paper, Fungusproofing), (*Laminated plastics, Fungusproofing), (*Asphalt, Fungusproofing), Fungicides, Fungus deterioration, Packaging, Wood, Storage, Polyethylene plastics, Preservation, Resistance(Biological)

AD-632 504

276229 10035 06479 1

58 **First seminar on wood preservation. Technical notes.**

Primer seminario sobre preservacion de maderas. Notas tecnicas.

Hoheisel, H. ; Romero, A., E. Lopez G., O. ; Mejia M., L. C.

Publ Medellin; Colombia, Facultad de Ciencias Agricolas, Universidad Nacional

1969, 121 pp.

Languages: Es

many ref.

A collection of technical notes, prepared for the course on wood preservation by the Forest Products Laboratory of the University at Medellin, Colombia. It contains: A list of wood preservatives with names and addresses of manufacturers; A list of 45 species of Latin American timbers of very high natural durability; A preliminary study of the efficacy and required concentration of the fungicidal additive Osmose-Plus against the development of Fusarium sp. on specimens of Virola treated with CCA Osmose K 33 salts (H. Hoheisel; O. Lopez, G.; L.C. Mejia M.); and several papers by E. Romero, including : Termite problems in Eucalypt plantations in tropical zones; Contribution to study of Alnus jorullensis - wood preservation; Analysis of the susceptibility of Cupressus lusitanica to attack by Lyctus; Some considerations on the use of Mangrove timber in contact with the soil (describing trials in Puerto Rico); The present state of timber preservation in Colombia; and Wood preservation in tropical countries.

Descriptors: Eucalyptus; sp(p). and hybrids; wood; termite attack; insect pests; - Isopt.; Virola; sp(p).; Alnus; jorullensis; Cupressus; lusitanica; Lyctus; Fusarium; preservation, wood etc.; conferences, symposia; durability of wood, natural; America, Latin; timbers; Colombia; preservation, wood; preservatives, wood

DC No: 841((861) + 946.2) + 814.1(--174(803) + 174.7 Cupressus lusitanica) + 844.1--172.8 Fusarium sp. + 453 145.7x07((213) + 178.1 Eucalyptus spp.).

Subject Codes: F841 F453107 ; F814 ; F8441 ; F845 ; F9462

59. **FOREST PRODUCTS LABORATORY LIST OF PUBLICATIONS ON FUNGUS AND INSECT DEFECTS IN FOREST PRODUCTS**

Forest Products Lab Madison Wis (141700)
4034F2 Fld: 11L, 2F USGRDR6801
Oct 67 36p
Prepared in cooperation with Wisconsin Univ., Madison.

Abstract: The forest products laboratory list of publications contains a partial list, arranged chronologically, on, 'Fungus and Insect Defects in Forest Products'. Information on obtaining the publications are given. (Author)

Descriptors: (*Wood, Defects(Materials)), (*Forestry, Bibliographies), Fungi, Insects, Plywood, Chemicals, Physical properties, Discoloration, Wood pulp, Degradation

AD-661 102 CFSTI Prices: PC A03/MF A01

79139948 80010099 Holding Library: AGL

60 **From studies on the effect of turpenting on the health state of trees (Pinus, insect pests and fungus diseases)**

Z badan nad wplywem zywicowania na stan zdrowotny drzew

Kolk, A.; Sierota, Z.

Warszawa, , Panstwowe Wydawn. Rolnicze i Lesne.

Prace.Instytut Badawczy Lesnictwa. 1979. (542/548) , 1979. p. 177-187. ill.

NAL: 99.9 W263

17 ref

Geographic Location: Poland

Document Type: ARTICLE

Section Headings: FOREST INDUSTRIES(3520); INSECT PESTS AND CONTROL, FOREST TREES AND WOOD PRODUCTS(4545); PLANT FUNGUS DISEASES AND CONTROL(4505)

985795 M0058-02416 1

61 **Fungal decomposition in relation to carbon dioxide evolution in a tropical sal forest biome.**

Dwivedi, R. S. ; Shukla, A. N.
Banaras Hindu Univ., Varanasi, India.
Proceedings of the Indian National Science Academy, B, 1977, 43,1/2, 26-32
Languages: En
9 ref., 4 tab.

Fungal decomposition of litter and total soil respiration at monthly intervals were studied for 1 yr in a Shorea robusta forest. Phycomycetes were isolated at first and were later replaced by cellulose decomposing ascomycetes and deuteromycetes. Evolution of CO2 was correlated with temp. and the fungal population. The respiration rate of the soil was greater than that from litter in all months except Aug. and Sept., when the reverse occurred.

Descriptors: Shorea robusta; fungi; decomposition of litter
Identifiers: India
Subject Codes: M341162

79142824 80012977 Holding Library: AGL

62 **Fungicide efficiency of pentachlorophenol and tetrachlorophenol in the protection of wood**

Efficacite fongicide du pentachlorophenol et du tetrachlorophenol dans la protection du bois
Leclercq, A.;
Gembloux, , Presses agronomiques de Gembloux.
Bulletin des recherches agronomiques de Gembloux. v. 12 (3) , 1977. p. 215-222. ill.
ISSN 0435-2033:
NAL: S5.B8
Languages: FRENCH ; ENGLISH
6 ref
Document Type: ARTICLE
Section Headings: PLANT FUNGUS DISEASES AND CONTROL(4505)

63 **Fungusproofing. (Industrial Processing Series). Volume I**

Defense Documentation Center Alexandria Va (107200)

Report bibliography Dec 43-Jul 70.
A1855D2 Fld: 6F, 13H, 71L GRAI7109
Feb 71 74p*
Rept No: DDC-TAS-70-83-1
See also Volume 2, AD-514 601.

Abstract: The bibliograph is the first volume of a two-volume set on Fungusproofing in a series of bibliographies on Industrial Processing. It includes 44 annotated references and covers the period from January 1953 to January 1971. Corporate author-monitoring agency, subject, title, personal author, and report number indexes are included.

Descriptors: (*Fungusproofing, *Bibliographies), Corrosion inhibition, Plastics, Weatherproofing, Textiles, Paints, Microorganisms, Fungicides, Coatings, Fungus deterioration, Moistureproofing, Degradation, Fungi, Composition board

Identifiers: Wood rotting fungus, Brown rot fungus

AD-720 202 NTIS Prices: PC A04/MF A01

64 **Fungusproofing**

Defense Documentation Center Alexandria Va (107200)

Report bibliography Dec 43-Aug 72.
C2191B2 Fld: 6F, 71L*, 57P GRAI7405
Dec 73 265p*
Rept No: DDC-TAS-73-72
Monitor: 18
Supersedes AD-720 202.

Abstract: The bibliography is a collection of references relating to fungusproofing as it pertains to industrial processing. The process of weatherproofing, coating, moistureproofing, fungus deterioration, and fungicides are discussed. Corporate Author-Monitoring Agency, Subject, Title, and Personal Author indexes are included. (Author)

Descriptors: *Fungicides, *Bibliographies, Fungusproofing, Moistureproofing, Weatherproofing, Plastics, Textiles, Microorganisms, Coatings, Fungus deterioration, Paper, Composition board, Wood, Humidity

Identifiers: SD

AD-771 700/2 NTIS Prices: PC A12/MF A01

65 79102224 79090470 Holding Library: AGL
Glucose-2-oxidase activity and accumulation of D-arabino-2-hexosulose in cultures of the Basidiomycete Oudemansiella mucida (Wood-destroying fungus).
Volc, J.; Sedmera, P.
Praha, , Academia.
Folia microbiologica, v. 23 (4) , 1978. p. 292-298. ill.
ISSN 0015-5632:
NAL: 448.3 C332
Languages: ENGLISH
16 ref
Document Type: ARTICLE
Section Headings: PLANT PHYSIOLOGY AND BIOCHEMISTY, GENERAL(4030); FOREST INDUSTRIES(3520)

66 138266 ID NO.- EI71X038266
Growth of selected cellulolytic fungi on wood pulp
CHAHAL DS; GRAY WD
Punjab Agricultural Univ, Ludhiana, India
Biodeterioration of Materials, Microbiological and Allied Aspects. Proc of 1st Int Biodeterioration Symp Sept 9-14 1968, Southampton Univ, Engl, p 584-93
Although many fungi show cellulolytic activity, very few could grow on wood pulp as a carbon source. It is interesting to note that Rhizoctonia sp. , a cellulolytic fungus, which has never been reported to deteriorate any cellulosic fabric, utilized pulp more readily and produced more total protein than all other fungi tested. With respect to total protein production, in general Rhizoctonia sp. surpassed Myrothecium verrucaria, Chetomium globosum and Trichoderma sp. which are best known for their high cellulolytic activity and are among the most commonly- occurring organisms responsible for deterioration of cellulosic material.
DESCRIPTORS: (*WOOD, *Fungus Attack),
CARD ALERT: 000

G1713A3 PB80-173453
67 **Guide to the Inspection of New Houses and Houses Under Construction for Conditions Which Favor Attack by Wood-Inhabiting Fungi and Insects**
Levy, Michael P.
North Carolina State Univ. at Raleigh. School of Forest Resources.*Department of Housing and Urban Development, Washington, DC. Office of Policy Development and Research.*Forest Service, Washington, DC.
1979 46p
Sponsored in part by Forest Service, Washington, DC.

68 010052 ID NO.- EI70X010052
How to beat daylights out of fungi
IRVINE JT
Nat Engr v 73 n 8 Aug 1969 p 6-7
Methods of controlling fungus growth in '%'dry'%' sections of wooden water cooling tower including plenum, mist eliminator and fan stack are reviewed; advantages of method that involves applying fungicide utilizing electric fog machine.
DESCRIPTORS: (*WATER COOLING TOWERS, *Wood), (WATER COOLING TOWERS, Maintenance),
CARD ALERT: 160, 222

337875 ID NO.- EI730737875

69 **INCREASED FUNGAL RESISTANCE OF WOOD TREATED WITH MODIFIED UREA-BASED FIRE-RETARDANT RESINS.**

Juneja, S. C.; Shields, J. K.
Canadian Forestry Service, Ottawa, Ont
Forest Prod J v 23 n 5 May 1973 p 47-49 CODEN: FPJOAB

An amino-resin-based fire retardant was shown to be effective in resisting attack of a brown rot fungus in yellow birch specimens subjected to 5 weeks of incubation with the fungus. The advantage of this treatment is that fungal resistance can be built into wood products at the same time they are treated for fire retardancy. 10 refs.

DESCRIPTORS: *WOOD PRESERVATION, EPOXY RESINS, (WOOD, Fireproofing),
IDENTIFIERS: FUNGAL RESISTANCE
CARD ALERT: 811, 914

251098 ID NO.- EI72X051098

70 **Influence of moisture transport on fungal growth**

HILL DO; APRIL GC
Univ of Alabama, University
J Paint Technol v 43 n 560 Sept 1971 p 81-8 CODEN: JPTYA

Fluorocarbon and silicone chemicals were used to investigate the difference in water transport in the vapor and liquid phase of painted and unpainted surfaces. Results obtained in an accelerated testing program indicate that, although the treated specimens greatly reduced liquid phase transport, fungal attack was not significantly inyibited. Painted, unpainted, treated, and untreated Southern yellow pine blocks underwent initial mildew attack at the same equivalent moisture concentration (20. 9% of saturation), within the test specimens. 32 refs.

DESCRIPTORS: (*PROTECTIVE COATINGS, *Vapor Deposition), (PROTECTIVE COATINGS, Testing), SILICON COMPOUNDS, FLUORINE COMPOUNDS, (WOOD, Fungus Attack),
CARD ALERT: 421, 539, 803, 811

71 **INITIAL FUNGUS ATTACK ON TROPICAL WOODS IN PANAMANIAN ESTUARINE WATERS**

Naval Research Lab Washington D C (251950)

Interim rept.
AUTHOR: Ritchie, Donald D.
5483D2 Fld: 11L, 6P USGRDR6904
12 Nov 68 12p
Rept No: NRL-6754
Project: RR-007-08-44-5503

Abstract: Eight species of tropical timber woods (Chrysophyllum cainito, Ocotea rodiaei, Pinus caribaea, Pouteria chiricana, Prioria copaifera, Rhizophora mangle, Symphonia globulifers, and Tabebuia pentaphylla) were submerged in estuaries near the entrances of the Panama Canal. These species were chosen according to their susceptibility to attack by marine borers and were invaded by salt-tolerant fungi, mostly imperfect species. Fungus infestation varied from almost none to very heavy in less than six weeks, but the amount of mycelium in the woods bore no apparent relation to either animal attack or salinity. Ocotea rodiaei (greenheart) and Rhizophora mangle (red mangrove) were practically fungus-free at the end of the test. Prioria copaifera (cativo) was filled with mycelium, and the others were invaded by scattered hyphae. (Author)

Descriptors: (*Wood, *Fungus deterioration), Estuaries, Panama , Fungi, Marine borers, Salinity, Tropical regions

AD-679 666 CFSTI Prices: PC A02/MF A01

4 79021 ID NO F1741279021

72 **INITIAL WOOD DECAY STAGES AS REVEALED BY SCANNING ELECTRON MICROSCOPY.**

Jutte, Susanna M ; Zabel, R. A.
State Univ of NY, Syracuse
Scanning Electron Microsc, Symp, 7th Annu, Proc, III Inst of Technol Res Inst, Chicago, Apr 8 11 1974 p 445-451. Available from IITRI, Chicago, Ill, 1974

Initial decay stages caused by representatives of the major types of wood decay microorganisms were examined by scanning electron microscopy. The purposes were to determine the roles of hyphae in initial wood penetration and related early stages of decay and to explore the utility of this instrument for studying hyphal development and growth patterns in wood. 15 refs.

DESCRIPTORS. *MICROSCOPES, ELECTRON, (WOOD, Microscopic Examination),
CARD ALERT: 422, 423, 811

73 **International Symposium on Biological Damage (1st) (Pervyi Mezhdunarodnyi Simpozium po Biologicheskim Povrezdeniyam)**

Army Foreign Science and Technology Center Washington D C (038300)
AUTHOR: Sinadskii, Yu. V.
A1291F2 Fld: 6M, 57K USGRDR7102
24 Sep 70 11p
Rept No: FSTC-HT-23-984-70
Trans. of Mikologiya i Fitopatologiya (USSR) v2 n4 p397-400 1969.

Abstract: The problem of biological damage of materials should be examined in close association with phytopathology and mycology, entomology and zoology, the chemistry of wood and cellulose, the industrial processes involved in wood processing, etc. Solution of this problem will make it possible to increase the longevity abd reliability of articles and structures and will show how to preserve materials and products. The First International Symposium on Biological Damage was held at Southhampton University (England). The subject matter of the symposium was as follows: fundamentals and mechanisms of biological damage, contending with biological damage, enzymatic damage to materials, corrosion, mechanical damage and functional interference. Summaries of reports of interest are presented.

Descriptors: (*Microbiology, Degradation), (*Degradation, Materials), Fungus deterioration, Enzymes, Damage, Corrosion, Materials, Ecology, Microorganisms, Cellulose, Fouling, Wood, Plants(Botany), USSR

Identifiers: *Biodeterioration, Translations

AD-715 034 NTIS Prices: PC A02/MF A01

74 **Isolation of Lignin Degrading Tropical Microorganisms**

National Science Foundation, Washington, D. C. Research Applied to National Needs.

Progress rept. 1 May-31 Dec 76
AUTHOR. Scott, W.; Roth, F.
D3165A1 Fld: 11L, 6C, 71R, 57C, 71L GRAI7720
1976 18p
Rept No: NSF/RA-77/0100
Monitor: 18

Abstract: This study is designed to examine decomposing wood from tropical and subtropical areas with the purpose of isolating such growth forms. The decaying wood is fragmented and plated on a battery of media designed to select out the organisms possessing ligniolytic and cellulolytic attributes. Such forms are placed in pure culture, studied as to their taxonomy and evaluated for the capacity to grow on various lignin and cellulose substrates. The amount of lignin degradation is determined by employing Bjorkman lignin and the presence or absence of polyphenol oxidases are assayed.

Descriptors: *Lignin, *Biodeterioration, *Wood pulp, Culture media, Substrates, Fungi, Bioassay, Cellulase, Removal, Separation, Wood products, Tropical regions

Identifiers: NTISNSFRA

PB-269 408/1ST NTIS Prices: PC A02/MF A01

75 **Isolation of Lignocellulose Transforming Microbes**

Wisconsin Univ.-Madison. Dept. of Entomology.+National Science Foundation, Washington, DC. Engineering and Applied Science. (048949049)

Progress rept. no. 3, 15 Feb-14 Aug 79
AUTHOR: Norris, Dale M.
G0474G2 Fld: 6M, 57K GRAI8006
1979 15p
Grant: NSF-AER77-08279
Monitor: NSF/RA-790222

Abstract: Research on the isolation and identification of ectosymicotes which degrade lignin into substances, including appetite stimulants, is reported. Principal highlights to date include (1) demonstration that a strain of Fusarium solani, a major ectosymbiote of ambrosia beetles, alters lignin model compounds by sidechain oxidation; (2) the degradation of the lignin in sound hardwood substrate under several in vitro conditions caused by a fungal ectosymbiotic strain associated with the beetle, Dendroctonus pseudotsugae; (3) extensive field research programs conducted to isolate new strains of ectosymbiotic microbes from three species of ambrosia beetle; and (4) prototype multi-species microbial systems to convert lignin of standard hardwood substrate into simple phenolics that stimulate the appetite of domesticated animals and also yield high protein microbial mass for use as animal feedstuffs. Experimental methods are described and results tabulated and graphed. Eight references are listed.

Descriptors: +Lignocellulose, Cellulose, Lignin, Coleoptera, Isolation, Identifying, Fungi, Insects, Wood, Feeding stuffs, Bioassay, Microorganisms

Identifiers: Dendroctonus pseudotsugae, Ectosymicotes, Fusarium solani, NTISNSFRA

PB80-118441 NTIS Prices: PC A02/MF A01

962624 ID NO.- EI790862624

76 **LABORATORY SCREENING TESTS OF FUNGICIDES OF LOW TOXIC HAZARD FOR PREVENTING FUNGAL STAIN OF LUMBER.**

Unligil, H. H.
Can For Serv, East For Prod Lab, Ottawa, Ont
For Prod J v 29 n 4 Apr 1979 p 55-56 CODEN: FPJOAB
This report presents results of further laboratory tests with 23 fungicides, many of which were agricultural fungicides with low mammalian toxicity. Some of the better performing compounds from these laboratory tests, and others, are being tested outdoors near Ottawa, Ontario. 4 refs.
DESCRIPTORS: (+LUMBER, +Testing), (WOOD, Fungus Attack), FUNGICIDES.
IDENTIFIERS: FUNGAL STAIN
CARD ALERT: 811, 421, 804

81011498 80737219 Holding Library: AGL; AGL

77 List of publications: Biodegradation and preservation of wood

United States . Forest Products Laboratory.
Madison, Wis. , USDA, Forest Service, Forest Products Laboratory. WISCONSIN
NAL: aTS800.U52
Languages: ENGLISH
Subfile: USDA .(US DEPT. AGR); 938514;
Government Source: FEDERAL
Document Type: SERIES
Descriptors: Wood--Preservation--Bibliography--Periodicals ; Wood research--Bibliography--Periodicals ;
Section Headings: FOREST PRODUCTS-WOOD(K510)

79082452 79070583 Holding Library: AGL

78 Long-term storage of cultures of wood-inhibiting fungi under mineral oil

Perrin, P.W.;

Bronx, N.Y., , The New York Botanical Garden.

Mycologia. v. 71 (4) , July/Aug 1979. p. 867-869. ill.

ISSN 0027 5514:

NAL: 450 M99

Languages: ENGLISH

6 ref

Subfile: OTHER US .(NOT EXP STN, EXT, USDA; SINCE 12/76);

Document Type: ARTICLE

Section Headings: PLANT PHYSIOLOGY AND BIOCHEMISTY, GENERAL(4030); PLANT FUNGUS DISEASES AND CONTROL(4505)

1040708 F1002-01604 1

79 **Manual of wood preservation in tropical climates.**

Manuel de preservation des bois en climat tropical.

Deon, G

Publ: Paris, France; CTFT(?).

1978.?., 111 pp

Src: Jnl Source: review in Bois et Forets des Tropiques No. 177, p. 50.

Price: 66 Ff

Languages: Fr

A practical manual, with chapters headed: Protection of saw-logs; Temporary protection of fresh sawn timber and rotary-cut veneers; Protection of wood installation; Agents of deterioration; Natural durability of timber. Preservation of wood before installation (materials and processes); Impregnability of wood; Protection of building timber; Protection of squared timber used in contact with the soil; Protection of roundwood (pit props, posts and poles); Protection of plywood; Protection of wood in marine uses.

Descriptors: book; preservation, wood etc.; durability of wood, natural; decay in wood; prevention; control; tropical timbers

DC No: IPA 5 5 + (213)

Subject Codes: F1055

80 **Mechanism of Degradation of Wood and Pulp Products in Water Solution**

Arizona Univ., Tucson. Dept. of Chemistry.

Technical completion rept. 1 Jul 71-30 Jun 72

AUTHOR: Steelink, Cornelius; Clare, Sheldon I.

A5242L3 Fld: 7C, 6A, 59D, 68D, 57K GRAI7221

3 Aug 72 7p

Project: OWRR-A-033-ARIZ

Monitor: OWRR A-033-ARIZ(1)

Abstract: The industrial production of paper and pulp from wood yields lignin (or spent liquors) as a by-product. This dark brown material is discharged as effluent in most operations. The authors very briefly discuss the microbiological and chemical degradation of lignin to determine which fungi are most effective in attacking it and what chemical sites are most susceptible to attack. In addition, the origin of the dark-colored substances that are produced by the chemical processes in wood pulping are discussed.

Descriptors: (*Lignin, *Biodeterioration), (*Spent liquors(Pulping), Biodeterioration), (*Water pollution, Spent liquors(Pulping)), Decomposition reactions, Industrial wastes, Fungi, PH, Colors(Materials), Dissolved organic matter, Quinones

Identifiers: Water pollution control, *Polyporaceae, *Lignosulfonates

PB-211 645 NTIS Prices: PC A02/MF A01

921474 F1001-01989 1

81 **Meeting report. IUFRO Division V, Group S5.03, Wood protection, Abidjan, Ivory Coast, 17-23 Feb. 1975.**

IUFRO Division V, S5.03 Groupe protection du bois, Reunion d'Abidjan, 17-23 Fevrier 1975.

Addo-Ashong, F. W. ; Ampong, F. F. K. ; Odeyinde, M. A. ; Lucas, E. B. ; Vergnet, L. F. ; Liese, W. ; Deon, G. ; Alliot, H. ; Richardson, B. A. ; Becker, G. ; Berhane, Z. ; Yusuf, E. ; Fougerousse, M. ; Levy, C. R. ; Bedel, J. ; Rakotovao, G. ; Thiel, J. ; Reydel, J. ; Buchwald, G. ; Cymorek, S. ; Hinterberger, H. ; Metzner, W. ; Johnson, B. R. ; Gjovik, L. R. ; Baechler, R. H. ; Mason, C. G. W. ; Watson, R. W. ; Willeitner, H.

International Union of Forestry Research Organizations

Publ: Nogent-sur-Marne, France; Centre Technique Forestier Tropical.

1976. 212 pp.

Languages: Fr, En

Addo-Ashong, F.W.; Ampong, F.F.K. Some problems of wood preservation in Ghana. (9 ref.) Odeyinde, M.A.; Lucas, E.B. The relevance of wood preservation for increased utilization of 'lesser-used' timber species in Nigeria. (6 ref.) Vergnet, L.F. (Aspects of the development of wood preservation in the Ivory Coast.) Perspective de developpement de la preservation des bois en Cote d'Ivoire. Liese, W. Scope and functions of a wood preservation laboratory in a developing country. Deon, G. (Trials with fungicides and insecticides for the preservation of freshly-cut roundwood in a tropical climate.) L'experimentation des produits fongicides et insecticides pour la preservation, en climat tropical des billes de coupe fraiche. (2 pl.) Alliot, H. (Chemicals for the protection of roundwood in the tropics. Application methods for satisfactory results.) Produits chimiques utilises pour la protection des billes en climat tropical. Conditions d'application pour obtenir des resultats satisfaisants. Richardson, B.A. Safer stain control using quaternary ammonium compounds and borates. (11 ref.) Treatment against stain fungi. Becker, G. (African xylophagous termites.) Sur les termites xylophages d'Afrique. (29 ref., 4 pl.) Berhane, Z.; Yusuf, E. Effect of different preservatives on the termite resistance of some common Ethiopian timbers. (3 ref.) Becker, G. Laboratory tests on the natural resistance of wood species against different termite species. (44 ref.) Fougerousse, M. (Trials on the natural resistance of tropical timbers to marine borers in the Mediterranean.) Experiences sur la resistance naturelle de bois tropicaux aux xylophages marins en Mediterranee. (3 pl.) Levy, C.R. The introduction of wood preservation into Papua New Guinea and its effect of the rural economy. (6 ref., 6 pl.) Bedel, J.; Rakotovao, G.; Thiel, J. (Trials on the preservation of poles and posts for rural use in Madagascar.) Experiences de preservation de perches et piquets a usage rural en Republique Malgache. (15 ref., 5 pl.) Reydel, J. (Problems of preservation of tropical timbers as semi-finished products. 1. Technical aspects.) Problemes de conservation des bois tropicaux sous forme de produits semi-finis. 1. Aspects technologiques. Buchwald, G.; Cymorek, S.; Hinterberger, H.; Metzner, W. Problems of preservation of tropical timbers as simi-finished products. 2. Biological and chemical aspects. (17 ref., 7 pl.) Johnson, B.R.; Gjovik, L.R.; Baechler, R.H. Preservative treatment by double diffusion and its applicability to tropical woods. (13 ref., 1 pl.) Mason, C.G.W. An apparatus and technique for perfusion treatment of tropical woods. (7 ref.) Levy, C.R. The field evaluation of the perfusion (HPSD) process for treatment of round timbers in Papua-New Guinea. Watson, R.W. Controlled preservative treatment of tropical secondary species. (8 ref., 2 pl.) Deon, G. (Research on the permeability of tropical hardwoods.) Recherches sur l'impregnabilite des bois feuillus tropicaux. (1 pl.) Willeitner, H. Factors influencing the application of wood preservation methods in tropical countries.

Descriptors: conferences, symposia; preservation, wood; preservation, wood etc.; economics; Developing countries; preservative-treated wood; laboratory testing; field and service trials; preservative treatment; poles; posts; preservatives, wood; ammonium compounds; B compounds; stain fungi; stains in wood; control; termites; timber pests; resistance; marine borers

DC No: FPA 1.19 + 5.5 + (213)

Subject Codes: F10119 F1055

82 **METHODS FOR DETERMINING THE RESISTANCE OF NON-METALLIC MATERIALS TO THE DESTRUCTIVE ACTION OF FUNGI**

Army Biological Labs Frederick M (000000)

AUTHOR: Flerov, B. K.; Maslennikova, M. S.; Surovtseva, D. A.

1974D1 USGRDR6515

Nov 63 2p

Rept No: trans-945

Monitor: TT-65-62499

Trans. of Mikrobiologiya (USSR) v32 n3 p551-7 1963.

Descriptors: (*Fungus deterioration, Materials), (*Materials, Fungus deterioration), Tropical regions, Wood, Adhesives, Fibers(Natural), Plastics, Rubber, Paints, Plants(Botany), Culture media, Growth, Nutrition, Fungi, Dust, Test methods, USSR

AD-616 693 CFSTI Price: PC A02

710972 ID NO. FI770210972

83 **MICROBIAL ASPECTS OF THE DETERIORATION OF MATERIALS.**

Gilbert, R. J. (Ed.); Lovelock, D. W. (Ed.)

Cent Public Health Lab, Food Hyg Lab, London, Engl

Soc for Appl Bacteriol, Tech Ser n 9 Publ by Academic Press, New York, NY, 1975 261 p

This volume contains 14 contributions to the Autumn Demonstration Meeting of the Society of Applied Bacteriology, October 24, 1973, in London. Some papers are: organisms for biodeterioration testing $FM DASH$ molds and fungi; isolation and characterization of wood inhabiting fungi; marine fouling algae; the microbial spoilage of phramaceutical products. The remaining papers deal with biodeterioration of timber, metals, aircraft fuel systems, petroleum products, pipe wrappings and coatings, wool, rubber, tobacco and footwear. Bibliography data at end of each paper.

DESCRIPTORS: (*MATERIALS, *Decomposition), BIOCHEMICAL ENGINEERING,

IDENTIFIERS: MICROBIOLOGY, BIODETERIORATION

CARD ALERT: 461, 802

152547 ID NO.- FI71X052547

84 **Microbial attack of timber and allied constructional materials**

SAVORY JG

Ministry of Technol, Forest Products Res Lab, Buckinghamshire,

Biodeterioration of Materials, Microbiological and Allied Aspects. Proc of 1st Int Biodeterioration Symp Sept 9-14 1968, Southampton Univ, Engl, p 403-7

The characteristics of constructional timber, and of building materials manufactured form wood, which influence microbial attack are outlined. Lignicolous microorganisms of economic importance are separated into groups based on their characteristic effects upon timber. The interrelations between types of material, situation and mode of use and the groups of organisms likely to be of importance are discussed.

DESCRIPTORS: *BUILDING MATERIALS, WOOD,

CARD ALERT: 000

516892 M0055-00935 1

85 **Microbiological aspects of wood chip storage in tropical environments.**

Greaves, H.

CSIRO, For. Products Res., Melbourne, Vict., Australia.

Australian Journal of Biological Sciences, 1975, 28,3, 315-322

Languages: En

3 diag., 2 tab.

The microbiology of wood chip storage was examined in small experimental piles at 2 sites in New Guinea. Biodeterioration occurred as wood discoloration and loss of wood substance, including cellulosics; over a period of 2-4 months c. 20%/month of the vol. of the pile was seriously discoloured and wood substance loss amounted to c. 1.5%/month. Decay was mainly due to soft rotting organisms including Chaetomium globosum, C. thermophile, Humicola lanuginosa, Cephalosporium acremonium and Gliomastix subiculosa. Wood rotting basidiomycetes were infrequent, although pockets of white rotted mycelial matted chips were observed in the outer 1.5 m in one pile. A successional trend of colonizing micro-organisms was established and profiles of the main zones of microbiological activity were determined. The rapid rise in temp., characteristic of wood piles after construction, had a marked influence on microbial populations. Thermotolerant spp. included Humicola spp., Aspergillus spp., some actinomycetes and Bacillus spp. Reasonable chemical control of biodeterioration was achieved by dipping chip samples in 1% Na pentachlorophenate. Three trichlorophenol formulations were less effective.

Descriptors: timber chips; decay; New Guinea, fungi associated; Chaetomium; globosum; thermophile; Humicola; lanuginosa; Cephalosporium; acremonium; Gliomastix; subiculosa ; sodium pentachlorophenate; against; timber chips decay

Subject Codes: M3430

79084240 79072386 Holding Library: AGL

86 **Microbiological degradation of lignin by wood-destroying fungi**

Ozolina, N.R.; Sergeeva, V.N.
Riga, , "Zinatne".
Vestis.Latvijas PSR zinatnu akademija. 1979. (6) . 1979. p. 107-121. ill.
ISSN 0132-6422:
NAL: 511 R442
Languages: RUSSIAN
53 ref
Document Type: ARTICLE
Section Headings: FOREST INDUSTRIES(3520)

87 **(Microbiological Degradation of Lignin)**

Maryland Univ Baltimore Dental School (219 350)
AUTHOR: GOTTLEIB, SIDNEY; GELLER, JERRY H.
E2184L4 Fld: 11L, 6A GRAI7821
26 Jun 53 6p
Contract: n7onr39704
Monitor: 18
Distribution limitation now removed. NOTE: Only 35mm microfilm is available. No microfiche.

Abstract: No abstract available.

Descriptors: (*Lignin, Decomposition), (*Wood, Degradation), (*Oxidororeductases, Physiological effects), (*Fungi, Enzymes), Phenols, Culture media, Substrates

Identifiers: NTISDODXD

AD-017 810/3ST NTIS Prices: PC A02/MF A01

770671 ID NO.- EI770970671

88 **MICRO-ORGANISMS AFFECTING QUALITY OF HARDWOOD TREES GROWING ON SOUTHERN PINE SITES AND OF PRODUCTS MADE FROM THEM.**

DeGroot, R. C.; McCracken, F. I.
USDA, For Serv, Gulfport, Miss
For Prod J v 27 n 6 Jun 1977 p 17-24 CODEN: FPJOAB
The effects of microorganisms on living trees $EM DASH$ trunk rots, root rots, wilts, dieback, and shake $EM DASH$ and on the final products $EM DASH$ logs, pulpwood chips, lumber and composite products $EM DASH$ are discussed. Anatomical and chemical changes are reviewed as well as preventive measures. An extensive bibliography is provided. 104 refs.
DESCRIPTORS: (*WOOD, *Decay), WOOD PRESERVATION.
CARD ALERT: 811

79112267 80725829 Holding Library: WAU; WAU; AGL

89 Mycorrhiza and its role in forestry

Bakshi, B. K.;
Dehra Dun , Forest Research Institute and Colleges , 1974 INDIA
89 p. : ill. (some col.) ; 25 cm.
NAL: QK604.B35
Languages: ENGLISH
Bibliography: p. 79-86
Document Type: MONOGRAPH
Descriptors: Mycorhiza ; Trees--Diseases and pests ; Wood-decaying fungi ;
Section Headings: PLANT FUNGUS DISEASES AND CONTROL(4505)

90 **NATURAL DECAY RESISTANCE OF FIFTEEN EXOTIC WOODS IMPORTED FOR EXTERIOR USE**

Forest Products Lab Madison Wis (141700)

Forest Service research paper
AUTHOR: Clark, Joe W.
5964K4 Fld: 11L USGRDR6911
Mar 69 7p*
Rept No: FSRP-FPL-103

Abstract: An evaluation based on laboratory and field testing of the decay resistance of 15 species of wood, mostly tropical. (Author)

Descriptors: (*Wood, Degradation), Exposure, Classification, Sampling, Soils, Tropical deterioration, Structures, Atmospheric temperature, Fungus deterioration, Least squares method, Insects, Moisture

Identifiers: Heartwood

AD-685 455 CFSTI Prices: PC A02/MF A01

91 **NATURAL DECAY RESISTANCE OF 30 PERUVIAN WOODS**

Forest Products Lab Madison Wis (141700)

Forest Service research paper
AUTHOR: Highley, T. L.; Scheffer, T. C.
A0692D1 Fld: 11L, 71R USGRDR7018
Jul 70 6p*
Rept No: FSRP-FPL-143

Abstract: Thirty Peruvian species of possible commercial significance were evaluated by soil-block testing for resistance to decay fungi. The tests indicated that 25 percent of the species would be resistant or highly resistant for use in contact with the ground and that 50 percent of the species would be resistant or highly resistant for use above ground. Decay resistance was found to be substantially correlated with the specific gravity of the various species. (Author)

Descriptors: (*Wood, *Fungus deterioration), (*Peru, Wood), Tropical deterioration, Exposure, Damage, Wear resistance, Weight, Classification, Resistance(Biological), Statistical data, Test methods

Identifiers: Hardwoods, Decay resistant wood

AD-709 718 CFSTI Prices: HC A02/MF A01

799199 F1001-00033 1

92 **Natural durability and preservation of one hundred tropical African woods.**

Fortin, Y. ; Poliquin, J.
Univ. Laval, Que., Canada.
Publ: Ottawa, Ont., Canada; International Development Research Centre.
1976, 131 pp. ISBN 0-88936-090-1
Languages: En Summary Languages: fr
250 ref. Publ. No. IDRC-017e

The criterion used for the selection of the first 44 woods was annual exports; the remainder were selected according to the amount of information available. The methods of interpretation and comparison of the data, compiled from many different sources, are described. The same format is used to present the data for each wood, allowing easy comparison. Information is given on: the natural resistance of green logs or lumber and of conditioned wood in service to fungal decay and insect attack; conditions of exposure that require preservative treatment; amenability to impregnation by preservatives; preservative treatments and their effectiveness; and the common uses of each wood. References are given for each wood. Indexes of scientific and common names are provided.

Descriptors: Africa, tropical; timbers; preservation, wood; tropical timbers; durability of wood, natural; nomenclature; preservative treatment; individual species

Identifiers: Africa
DC No: FPA 3.4 + 5.5 + 3.0
Subject Codes: F1034 F1055

1226852 F1003-03161 1

93 **Natural durability of the wood of Mexican tree species. I. Natural durability indices of 15 species.**

Durabilidad natural de la Madera de especies forestales Mexicanas. I. Indices de durabilidad natural de quince especies forestales.

Herrera Rodriguez, J. A. ; Gomez-Nava, M. del S. ; Herrera Bailon, A.

Instituto Nacional de Investigaciones Forestales, Mexico.

Boletin Tecnico, Instituto Nacional de Investigaciones Forestales, Mexico, 1976. No. 52. 24 pp.

Languages: Es Summary Languages: en

9 ref., 2 pl. (col.)

Results are given of soil/block tests (ASTM D-2017) on 2 softwoods and 6 hardwoods from the cool-temperate zones of Mexico, and on 7 hardwoods from the tropical zones. All wood samples were exposed to attack by Poria monticola, Lentinus lepideus and Polyporus sanguineus (Pycnoporus sanguineus). Of the species tested, Quercus crassifolia, Q. candicans, Swartzia cubensis and Calophyllum brasiliense were found to be highly resistant to P. monticola and L. lepideus. Alnus firmifolia was susceptible to both these fungi, and Abies religiosa var. emarginata to P. monticola. All 15 species were resistant or fairly resistant to P. sanguineus.

Descriptors: Quercus crassifolia; Quercus candicans; Swartzia cubensis; Calophyllum brasiliense; Alnus firmifolia; Abies religiosa emarginata; Poria monticola; Pycnoporus sanguineus; Lentinus lepideus; Cupressus lusitanica; Quercus scytophylla; Quercus laurina; Quercus obtusata; Aspidosperma megalocarpon; Blepharidium mexicanum; Sickingia salvadorensis; Ampelocera hottlei; Alseis yucatanensis; Mexico; timbers; durability of wood, natural; laboratory testing

Identifiers: Mexico

DC No: FPA 3.4 + (72) ; BN/Mexico

Subject Codes: F1034

80005186 80025355 Holding Library: AGL

94 **Natural durability of woods in contact with soil (Resistance to the fungi Polyporus fumosus, Fomes conatus and Lenzites trabea, and to termites, Sao Paulo State, Brazil)**

Durabilidade natural de madeiras em contato com o solo

Cavalcante, M.S.; Montagna, R.G.

Sao Paulo, , O Instituto.

Boletim tecnico.Instituto Florestal. 1978. (29) , 1978. 17 p. ill., map.

ISSN 0100-3151:

NAL: SD1.I593

4 ref

Geographic Location: Brazil

Document Type: ARTICLE

Section Headings: PLANT FUNGUS DISEASES AND CONTROL(4505); INSECT PESTS AND CONTROL, FOREST TREES AND WOOD PRODUCTS(4545)

95 **NATURAL RESISTANCE OF WOODS TO BIOLOGICAL DETERIORATION IN TROPICAL ENVIRONMENTS. PART I. SCREENING TESTS OF A LARGE NUMBER OF WOOD SPECIES**

Naval Research Lab Washington D C (251950)

Interim rept.

AUTHOR: Southwell, C. R.; Hummer, C. W. Jr; Forgeson, B. W.; Price, T. R.; Sweeney, T. R.

3555I2 Fld: 11L, 6C USGRDR6716

7 Feb 62 49p

Rept No: NRL-5673-Pt-1

Project: RR-007-08-44-5506

Monitor: 18

Abstract: In four different tropical environments, heavily infested with wood-destroying organisms, 114 species of scientifically identified woods have been undergoing a screening test for periods up to an 18-month exposure. Many of the woods were selected because of their reputed resistance to biological attack. Results of marine borer resistance studies have revealed 21 woods to be highly resistant to borers in Pacific Ocean water for the first 14 months of exposure. In tropical brackish water only 3 woods studied were highly resistant and very heavy damage was observed on 69 during the 14-month period. Stake tests in tropical jungle soil on both the Atlantic and Pacific Coasts of Panama showed 26 woods to be very durable to both subterranean termites and fungal decay for the first 18 months of exposure. A number of these resistant woods had not been studied previously. From the results of these studies, each wood included has been assigned resistance ratings of high, moderate, or low in respect to marine borer attack in sea water, teredo attack in brackish water, subterranean termites in tropical soil, and fungal decay in contact with jungle soil. Detailed descriptions of wood species which are considered to be of special interest are included. (Author)

Descriptors: (*Wood, Biological contamination), (*Tropical deterioration, Wood), Identification, Sampling, Exposure, Test methods, Marine borers, Resistance(Biological), Isoptera, Degradation, Tropical tests, Sea water, Soils, Fungus deterioration

AD-653 856 CFSTI Prices: PC A03/MF A01

655009 M0056-00435 1

96 **Natural resistance of tropical American woods to terrestrial wood-destroying organisms.**

Bultman, J. D. ; Southwell, C. R.
Naval Res. Lab., Washington, DC., USA.
Biotropica, 1976, 8,2, 71-95
Languages: En
6 fig , 7 tab.

In half-burial trials with heartwood stakes of 112 tropical and 2 domestic woods 39 survived 158 months of exposure; of these only 6 were highly resistant to all wood-destroying organisms present. Fungal damage was most severe at or below the ground line. Generally the denser woods were more durable than the lighter ones. Many of the most resistant woods contained extractives known to be fungal protectants.

Descriptors: timber; decay; resistance
Identifiers: USA
Subject Codes: M3430

676895 F0038-01583 1

97 **Natural resistance of tropical American woods to terrestrial wood-destroying organisms.**

Bultman, J. D. ; Southwell, C. R.
Naval Res. Lab., Washington, D.C., USA.
Biotropica, 1976, 8,2, 71-95
Languages: En
64 ref.

A detailed illustrated account of a study of Panama to assess the resistance of heartwood stakes (half-buried in the forest floor) of 112 tropical woods (and two temperate woods as controls) to infestation by subterranean termites and to fungal decay. Some wood specimens attached to pieces of Oak as bait were laid on the forest floor to evaluate the woods for subterranean termite damage without simultaneous groundline fungal attack. After ca. 13 years exposure, 39 of the woods were found to have survived, but only 4 species were considered to be exceptionally durable viz. Dalbergia retusa, Guajacum officinale, Ocotea rodiei and Vouacapoua americana. The most severe fungal damage to the stakes was caused by attack at or below the groundline; aboveground fungal decay was somewhat less severe. Subterranean termites destroyed susceptible woods much more rapidly than fungi, but many woods had a higher resistance to termites than to fungi. In general, the denser woods were more durable than the lighter woods, but most of the very resistant woods are thought to owe their resistance principally to the presence of organic extractives with repellent or toxic properties. Silica inclusions in the wood did not contribute to natural durability. Notes are given on the qualities of several woods included in the investigation that performed well in graveyard tests, and that are also known to possess natural resistance to marine boring organisms.

Descriptors: Dalbergia; retusa; Guaiacum; officinale; Ocotea ; rodiaei; Vouacapoua; americana; tropical timbers; durability of wood, natural; field and service trials; termites; timber pests; marine borers
Identifiers: Panama
DC No: 814.1 + 176.1 + 844.2 + 845.3
Subject Codes: F814 F8442 ; F8453

98. Withdrawn.

1202756 E0068-05180 3

99 **Notes on wood preservation.**

Anotaciones sobre preservacion de la madera.

International Union of Forestry Research Organisations (IUFRO): Meeting of IUFRO Working Parties S 2.06.12 and S 2.07.07, Pests and Diseases of Pines in the Tropics. 'Piedras Blancas', Medellin - Colombia, September 3-14, 1978.: Reunion de los grupos de trabajo de la IUFRO S 2.06.12 y S 2.07.07, Plagas y Enfermedades de Pinos en el Tropico. 'Piedras Blancas', Medellin - Colombia, Septiembre 3-14, 1978.

Bernal Restrepo, M. (Restrepo, M. Bernal);

Publ: Bogota, Colombia; Instituto Nacional de los Recursos Naturales Renovables y del Ambiente.

1978, recd. 1980. .14.8pp.

See Also: 1202739 E0068-05163

Languages: Es

The author reviews the damage that fungal and bacterial diseases and insect pests cause to wood and worked timber and briefly discusses the methods used in Colombia to protect wood from such attacks. Good results have been obtained over a period of 7 years with treatment of pine and cypress wood by the vacuum pressure method.

Descriptors: Pinus (wood); Cupressus (wood); wood; pest control

Subject Codes: E08128 E09106

100 **On the Use of Probit-Analysis for Assessing the Toxicity of Wood Preservatives (O Primenimosti Probit-Analiza dlya Otsenki Toksichnosti Antiseptikov na Drevesine)**

Building Research Establishment, Watford (England).

AUTHOR: Belenkov, D. A.

C3083E4 Fld: 11L GRAI7416

Feb 74 6p

Rept No: Library Trans-1816

Monitor: 18

Trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Lesnoi Zhurnal (USSR) n2 p83-86 1968.

Abstract: The author investigated the toxicity to Coniophora of sodium fluoride, sodium chloride and sodium silicofluoride, copper sulphate, zinc chloride, ammonium fluoride and ammonium pentaborate. The change of reaction of Coniophora in timber containing different amounts of NaF is well described by an S-shaped curve, similar to the integral function of a normal distribution. Similar graphs are also obtained when testing other preservatives. The nature of the curve shows yet again that different probit-analysis methods may be used when testing preservatives in timber. The proposed method gives an overall picture of the protection of the timber by a specific preservative against the action of wood-destroying fungus and enables the amount of toxic material, which should be selected for a more detailed investigation by the previously reported procedure, to be determined.

Descriptors: *Wood preservatives, *Fungicides, *Fungus proofing, Toxicity, Evaluation, Fungi, USSR, Translations

Identifiers: Coniophora cerebella, NTISSWIBR

PB-232 380-T NTIS Prices: PC E02/MF A01

101 **ONE-YEAR TROPICAL EXPOSURE OF WOOD STOCKS AND PLASTIC STOCKS FOR THE M14, 7.62MM RIFLE**

Springfield Armory, Mass.
AUTHOR: Szanto, J.
0061C1 Fld: S20 USGRDR3912
Rept No: SA-TR11-2637
Monitor: 18

Descriptors: *Small arms, *Gun components, *Wood, *Composite materials, *Laminated plastics, *Glass textiles, *Tropical tests, Structural parts, Plastics, Reinforcing materials, Environmental tests, Heat, Humidity, Fungus deterioration, Insects, Rodents

AD-429 246

235263 F0035-02703 1

102 **Outside storage of tropical hardwood chips. III. Microbial ecology of chip piles after two and four months' storage.**

Greaves, H.
Appita, 1973, 27,1, 25-30
Languages: En
33 ref. NLL

In a further study in equatorial New Guinea (cf. FA 33, 1710), the microbial ecology of mixed tropical hardwood chips stored for 2 and 4 months in experimental conical piles 40 ft in diam. and 25 ft high was investigated. The results revealed a successional trend of micro-organisms, leading to a loss of 2% and 7% of the wood substance after 2 and 4 months respectively; this trend was clearly related to the build-up in temperature in the piles immediately after their construction. Profiles of the piles, made while they were being broken down, are presented; these show the distribution of major microbial activity. The extent of biological deterioration in relation to use of the stored chips for paper-making, and the effects of re storing the chips after breakdown of a pile, are discussed.

Descriptors: chips; deterioration; protection; storage; decay fungi; ecology; succession
DC No: 848.41(--825.71--088 + 825.71--088 + 844.1/2).
Subject Codes: F84841 F825 ; F844

79058286 79046941 Holding Library: AGL

103 **Oxidases of wood-destroying fungi. I. Changes in the enzyme activity of the fungus Stereum hirsutum 024 (Pers.) Fr. when cultured in the presence of hydrolytic lignin**

Ozolina, N.R.; Kreicberg, Z.N.
Riga, , Izdatel'stvo "Zinatne"
Khimiia drevesiny Nov/Dec 1978. (6) , Nov/Dec 1978. p. 74-78. ill.
NAL: TS932.K45
Languages: RUSSIAN
11 ref
Document Type: ARTICLE
Section Headings: FOREST INDUSTRIES(3520); PLANT PHYSIOLOGY AND BIOCHEMISTY, GENERAL(4030); PLANT FUNGUS DISEASES AND CONTROL(4505)

972147 ID NO.- EI790972147

104 **PENTACHLOROPHENOL RESIDUES IN HUMAN ADIPOSE TISSUE.**

Ohe, Takeshi
Kyoto City Inst of Public Health, Jpn
Bull Environ Contam Toxicol v 22 n 3 Jun 1979 p 287-292
CODEN: BECTA6
ISSN 0007-4861

Pentachlorophenol (PCP) is widely used as a bactericide, herbicide and insecticide in agriculture and as a preservative of wood and various other products which are prone to microbiological attacks in industry and households. PCP is rather stable in environment and accumulates in biological systems. This paper reports on the residue levels of PCP in human adipose tissue of the general population in Japan. 14 refs.

DESCRIPTORS: (*PESTICIDES, *Environmental Impact), (BIOMEDICAL ENGINEERING, Living Systems Studies),
IDENTIFIERS: PENTACHLOROPHENOL
CARD ALERT: 804, 901

105 **Physiology of the Wood-Rotting Fungi**

Syracuse Univ N Y (339 600)
AUTHOR: JENNISON, M.W.; BARICK, PAUL
E1833J4 Fld: 6C GRAI7818
Jun 52 14
Contract: n6onr24802
Monitor: 18
Distribution limitation now removed. NOTE: Only 35mm microfilm is available. No microfiche.

Abstract: No abstract available.

Descriptors: *Fungi, Fungus deterioration, Nutrition, Physiology, Wood

Identifiers: NTISDODXD

AD-007 712/3ST NTIS Prices: PC A02/MF A01

106 **Physiology of the Wood-Rotting Fungi**

Syracuse Univ N Y (339 600)
AUTHOR: JENNISON, M.W.; HENDERSON, RICHARD
E1834C4 Fld: 6C GRAI7818
Jun 52 151p
Contract: n6onr24802
Monitor: 18
Distribution limitation now removed. NOTE: Only 35mm microfilm is available. No microfiche.

Abstract: No abstract available.

Descriptors: *Fungi, *Fungus deterioration, Physiology, Wood

Identifiers: NTISDODXD

AD-008 027/5ST NTIS Prices: PC A08/MF A01

107 **Physiology of the Wood-Rotting Basidiomycetes. I. Growth and Nutrition in Submerged Culture in Synthetic Media**

Syracuse Univ N Y (339 600)
AUTHOR: JENNISON, MARSHALL W.; NEWCOMB, MELVA DERRICK; HENDERSON, RICHARD
E1561I4 Fld: 6C GRAI7816
30 Sep 55 30p
Contract: nonr66902
Monitor: 18
Distribution limitation now removed. NOTE: Only 35mm microfilm is available. No microfiche.

Abstract: No abstract available.

Descriptors: *Fungi, Culture media, Fungus deterioration, Physiology, Wood

Identifiers: NTISDODXD

AD-076 984/4ST NTIS Prices: PC A03/MF A01

108 **Physiology of Wood-Rotting Basidiomycetes; II. Nutritive Composition of Mycelium Grown in Submerged Culture**

Syracuse Univ N Y (339 600)
AUTHOR: JENNISON, MARSHALL W.; RICHBERG, CARL G.; KRIKSZENS, ARTHUR E.
E1574I2 Fld: 6C GRAI7816
28 Sep 56 9p
Contract: nonr66906
Monitor: 18
Distribution limitation now removed. NOTE: Only 35mm microfilm is available. No microfiche.

Abstract: No abstract available.

Descriptors: *Fungus deterioration, *Molds(Organisms), Culture, Nutrition, Physiology

Identifiers: *Fungi, *Basidiomycetes, NTISDODXD

AD-135 281/4ST NTIS Prices: PC A02/MF A01

109 **Pine Wood Applications (A Bibliography with Abstracts)**

National Technical Information Service, Springfield, Va. (391 812)

Rept. for 1964-Oct 75
AUTHOR: Brown, Robena J.
C5543J1 Fld: 11L, 71R*, 86W GRAI7526
Oct 75 70p*
Monitor: 18

Abstract: The bibliography covers research conducted on pine wood. Wood properties for best utilization for furniture and wooden structures are covered. Tests for acceptability for particle boards, plywood, and veneers are included. Wood preservatives and treatments are also described. (Contains 65 abstracts)

Descriptors: *Pine wood, *Bibliographies, Wood preservatives, Fungus proofing, Structural properties, Lumbering, Surface defects, Market value, Cost analysis, Softwoods, Wood products , Structural timber, Quality, Adhesives, Density(Mass/volume), Pallets

Identifiers: Southern pines, NTISNTIS

NTIS/PS-75/798/9ST NTIS Prices: PC NO1/MF NO1

110 **Pine Wood Applications (A Bibliography with Abstracts)**

National Technical Information Service, Springfield, Va. (391 812)

Rept. for 1964-Oct 76
AUTHOR: Brown, Robena J.
D0415D3 Fld: 11L, 71R*, 86W GRAI7703
Nov 76 75p*
Monitor: 18
Supersedes NTIS/PS-75/798.(PC NO1/MF NO1)

Abstract: The bibliography covers research conducted on pine wood. Wood properties for best utilization for furniture and wooden structures are covered. Tests for acceptability for particle boards, plywood, and veneers are included. Wood preservatives and treatments are also described. (This updated bibliography contains 70 abstracts, 5 of which are new entries to the previous edition.)

Descriptors: *Pine wood, *Bibliographies, Wood preservatives, Fungus proofing, Structural properties, Lumbering, Surface defects, Market value, Cost analysis, Softwoods, Wood products , Structural timber, Quality, Adhesives, Density(Mass/Volume), Pallets

Identifiers: Southern pines, NTISNTIS

NTIS/PS-76/0924/1ST NTIS Prices: PC NO1/MF NO1

111 **Pine Wood Applications (A Bibliography with Abstracts)**

National Technical Information Service, Springfield, Va. 391 812)

Rept. for 1964-Oct 77
AUTHOR: Brown, Robena J.
E0161C1 Fld: 11L, 71R*, 86W GRAI7802
Nov 77 78p*
Monitor: 18
Supersedes NTIS/PS-76/0924, and NTIS/PS-75/798.

Abstract: The bibliography covers research conducted on pine wood. Wood properties for best utilization for furniture and wooden structures are covered. Tests for acceptability for particle boards, plywood, and veneers are included. Wood preservatives and treatments are also described. (This updated bibliography contains 73 abstracts, 3 of which are new entries to the previous edition.)

Descriptors: *Pine wood, *Bibliographies, Wood preservatives, Fungus proofing, Structural properties, Lumbering, Surface defects, Market value, Cost analysis, Softwoods, Wood products , Structural timber, Quality, Adhesives, Density(Mass/volume), Pallets

Identifiers: Southern pines, NTISNTIS

NTIS/PS-77/0985/0ST NTIS Prices: PC NO1/MF NO1

112 **Pine Wood Applications (A Bibliography with Abstracts)**

National Technical Information Service, Springfield, Va. (391 812)

Rept. for 1964-Oct 78
AUTHOR: Brown, Robena J.
E2741E3 Fld: 11L, 71R+, 89G, 86W GRAI7826
Oct 78 81p+
Monitor: 18
Supersedes NTIS/PS-77/0985, NTIS/PS-76/0924, and NTIS/PS-75/798.

Abstract: The bibliography covers research conducted on pine wood. Wood properties for best utilization for furniture and wooden structures are covered. Tests for acceptability for particle boards, plywood, and veneers are included. Wood preservatives and treatments are also described. (This updated bibliography contains 77 abstracts, 4 of which are new entries to the previous edition.)

Descriptors: +Pine wood, +Bibliographies, Wood preservatives, Fungus proofing, Structural properties, Lumbering, Surface defects, Market value, Cost analysis, Softwoods, Wood products , Structural timber, Quality, Adhesives, Density(Mass/volume), Pallets

Identifiers: Southern pines, NTISNTIS

NTIS/PS-78/1102/9ST NTIS Prices: PC NO1/MF NO1

113 **Pine Wood Applications (A Bibliography with Abstracts)**

National Technical Information Service, Springfield, VA. (055665000)

Rept. for 1964-Oct 79
AUTHOR: Brown, Robena J.
G0133G2 Fld: 11L, 71R+, 89G, 86W GRAI8002
Nov 79 86p+
Monitor: 18
Supersedes NTIS/PS-78/1102, NTIS/PS 77/0985, NTIS/PS 76/0924, and NTIS/PS-75/798.

Abstract: The bibliography covers research conducted on pine wood. Wood properties for best utilization for furniture and wooden structures are covered. Tests for acceptability for particle boards, plywood, and veneers are included. Wood preservatives and treatments are also described. (This updated bibliography contains 79 abstracts, 2 of which are new entries to the previous edition.)

Descriptors: +Pine wood, +Bibliographies, Wood preservatives, Fungus proofing, Structural properties, Lumbering, Surface defects, Market value, Cost analysis, Softwoods, Wood products , Structural timber, Quality, Adhesives, Density(Mass/volume), Pallets

Identifiers: Southern pines, NTISNTISN

PB80-801152 NTIS Prices: PC NO1/MF NO1

821302 F1001-00548 1

114 **Preservation of wood in construction.**
Preservation du bois dans la construction.
CTB, 10 ave. de Saint-Mande, 75012, Paris, France.
France, Centre Technique du Bois
Cahiers, Centre Technique du Bois, 1977, No. 104, 35 + 9 + 9 + 15 pp.
Languages: Fr
8 pl. PR
A folder containing: Leaflet, No. AFNOR X 40-500 (title as for folder). A review prepared under the aegis of the French National Standards Association, covering biological deterioration of wood (excluding surface deterioration) and its prevention. List of operators of wood preservative treatments, certificated by the CTB (in France). Includes a specimen certificate and a note of the conditions under which it is issued. List of stations (firms) applying preventive treatment against biological deterioration of wood, certificated by CTB (in France). List of approved chemicals and user's guide. Issued jointly by CTB and Centre Technique Forestier Tropical. The list is in 8 groups according to use. A list of suppliers (nearly all in France) is appended.
Descriptors: decay in wood; prevention; control, preservative treatment; building timbers; preservatives, wood; bibliographies and reference works
Identifiers: France
DC No: FPA 5.5 + (44) + 5.1
Subject Codes: F1055 F1051

241839 E0062-02423 3

115 **Preservative treatments and service life of fence posts in Puerto Rico (1969 progress report).**

Churchoff, M. ; Boone, R. S. ; Goytia, E.

Institute of Tropical Forestry, Rio Piedras, Puerto Rico.

Research Paper, Institute of Tropical Forestry, Forest Service, United States Department of Agriculture, 1969, No. 10, 30 pp.

Languages: En Summary Languages: es

17 ref., 3 fig.

Further investigations (cf. RAE/A 55, 835; 59, 979) are reported on the treatment of fence posts in Puerto Rico against attack mainly by fungi but also by termites. Some 70 timbers were under investigation at four sites at different altitudes and in different climatic conditions, most of the 6700 posts had been in the ground for 10 years or less and most of the results were therefore tentative. Posts established at high elevations (1120-2900 ft) had fewer failures than matched posts at a low elevation (100 ft) at Cambalache. Of 55 timbers treated by cold-soaking in a horizontal position for 5 days in 5% pentachlorophenol dissolved in diesel oil, Alchornea latifolia, Micropholis chrysophylloides, M. garcinaefolia and Sloanea berteriana gave the best results, with average service lives at Cambalache of 10 years or more. Treatment butt-downwards in a vertical position in 10% solution increased absorption of the chemical about fourfold. Vertical cold-soaking and the hot-and-cold bath technique were the most effective and are preferred to conventional cold-soaking or salt combinations applied by double diffusion. In a hot-and-cold bath method, incising the posts to assist penetration and absorption was helpful. The best double-diffusion technique was a tank method using a two-day soak in 10% copper sulphate followed by a two-day soak in a mixture of 6.5% sodium arsenate and 6.5% sodium chromate. Complete immersion gave better results than end treatment only.

Descriptors: Alchornea latifolia (timber); Micropholis chrysophylloides (timber); Micropholis garcinaefolia (timber); Sloanea berteriana (timber); preservative treatments

Subject Codes: E09106 E080706 ; E11002

116 **Principles for Protecting Wood Buildings from Decay**

Forest Products Lab Madison Wis (141700)

Forest Service research paper
AUTHOR: Scheffer, T. C.; Verrall, A. F.
C1705B1 Fld: 13M, 11L, 60H, 50C, 89G*, 71R, 71L* GRAI7322
1973 59p*
Rept No: FSRP-FPL-190
Monitor: 18

Abstract: Problems caused by decay in buildings in the United States and the means to avoid or control them are dealt with in this work. The principal moisture situations and construction features most responsible for the occurrence of decay in various building parts are described, and directions are given for approximately modifying or eliminating undesirable conditions. Emphasis throughout is on the two primary means of protecting against decay: (1) The use of dry wood and of construction methods to keep wood dry, and (2) methods to treat wood with a suitable preservative in areas where dry conditions cannot be maintained.

Descriptors: (*Buildings, Wood), (*Wood, Protection), (*Preservation, Buildings), (*Degradation, Wood), Construction materials, Fungus deterioration, Moisture, Foundations(Structures), Walls, Floors, Roofs, Impregnation

Identifiers: FPL

AD-767 566/3 NTIS Prices: PC A04/MF A01

117 **Proceedings of a Workshop on the Biodeterioration of Tropical Woods: Chemical Basis for Natural Resistance Held at Naval Research Laboratory, Washington, D.C. on October 17-18, 1974**

Naval Research Lab Washington D C (251950)
AUTHOR: Bultman, John D.
C7445K4 Fld: 11L, 71R* GRAI7623
Jul 76 102p
Monitor: 18

Abstract: ;Contents: Research at the Naval Research Laboratory on Bioresistant tropical woods: An Overview; Biocides from Marine borer resistant timbers; Dalbergia polyphenols and shell formation in mollusks: Preliminary results; Search for a 'Weak Link'; The performance of Dalbergia wood and Delbergia Extractives impregnated into pine and exposed in a water cooling tower; Inhibition of fungal growth and reproduction by obtusaquinone and some cinnamylphenols; Resistance of tropical woods to subterranean termites; Responses of the Formosan Subterranean Termite to tropical wood extracts; Field evaluation of natural wood extractives and some related compounds as antiborer agents; Comments on Melanin and polyphenoloxidase inhibitors.

Descriptors: *Wood, *Biodeterioration, *Tropical regions, *Meetings, Resistance(Biology), Chemical reactions, Biocides, Marine borers, Fungicides, Inhibition, Oxidation, Melanin, Response(Biology), Termites, Mollusca, Phenols, Polycyclic compounds, Cooling towers, Quinones

Identifiers: NTISDODN, NTISDODNRL

AD-A029 258/1ST NTIS Prices: PC A06/MF A01

441593 F0036-05933 1

118 **Proceedings of the V Symposium on Wood Protection.**

Trojanowski, J. ; Leonowicz, A. ; Fedorov, N. I. ; Lutomski, K. ; Wazny, J. ; Kubiak, M. ; Dymalski, E. ; Balaszy, S. ; Zyska, B. ; Urbanik, E. ; Wytwer, T. ; Splawa-Neyman, S. ; Dominik, J. ; Rudnewski, P. ; Dzbenski, W. ; Czajnik, M. ; Stolarski, P. ; Jozefaciuk, J.

Zeszyty Naukowe Szkoly Glownej Gospodarstwa Wiejskiego w Warszawie, Lesnictwo, 1970. No. 14, 235 pp.

Languages: Pl Summary Languages: ru, en

many ref.

A collection of 17 papers presented at a Symposium held in Poland, dealing mainly with the effects of fungi and insects on wood, and the preservative Dymalski; S. Balaszy) of the papers are continuations or other versions of work by the same authors, already noticed in FA, and include: The mechanism of biochemical decomposition of lignin by fungi (J. Trojanowski; A. Leonowicz); The activity of the oxidizing and hydrolytic enzymes of Fomes annosus (N.I. Fedorov) (cf. FA 33, 931); Changes in the weight of Scots Pine wood and its solubility in alkali under the influence of certain wood-destroying fungi (K. Lutomski); Studies on the occurrence of soft rot in Poland (J. Wazny); The mycoflora of Scots Pine chips stored in piles in the open (M. Kubiak; E. Dymalski; S. Balaszy) (cf. FA 33, 7105); The depth of penetration of pitwood by the vacuum/pressure method in industrial conditions (B. Zyska); Studies on the distribution of some fire-retardant salts in treated wood (E. Urbanik); Studies on the depth of penetration of fungicides into Spruce wood (T. Wytwer) (cf. FA 33, 6846); Protection of softwoods destined for use in a tropical climate (S. Splawa-Neyman); Results of preliminary investigations on the toxic effect of benzene extracts from certain plants on the larvae of insects feeding in wood (J. Dominik); The fungistatic effect of surfactants (E. Urbanik; S. Splawa-Neyman); Investigations on the use of ethylene oxide for the disinfestation of insect-infested old wood (J Dominik; P. Rudnewski; J. Wazny); Criteria for evaluating the technical properties of fossil Oak wood (W. Dzbenski); Studies on the use of synthetic resins for the preservation of wood attacked by fungi (M. Czajnik); Studies on the moisture-proofing of Pine wood by means of paraffin wax and Barisol wax for the packaging industry (P. Stolarski; E. Urbanik) (cf. FA 34, 3681); and The effect of resin tapping of Pine with chemical stimulation on the resistance of the wood to the action of destructive fungi (J. Wazny; J. Jozefaciuk).

Descriptors: Fomes; annosus; Pinus; sylvestris; wood; decay; preservation; chipping and chips; durability; Picea; abies; Quercus; robur s.l.; fossil; resin-tapping; lignin; biological decomposition; enzymes and enzyme activity; plants; decay fungi; biology and physiology; decay in wood; biological processes; chemical effects; chips; storage; preservation, wood etc.; pressure treatments; treatments of wood in service; preservative treatment; mine timbers; preservative-treated wood; preservative penetration and fixation; fireproofing of wood etc.; chemical constituents of plants, general; biologically active; waterproofing of wood etc.; fumigants; improved wood; effects; conferences, symposia etc.; preservation, wood; Poland; surfactants

DC No: 946.2- 84 + 172.8 Fomes annosus(- 012.4 + 160.29 Enzymes + 443.3) + 844.2(--813 + 813.11) + 841.3 -831.2 + 812.23(--84 + 841.1 + 843.1) + 814 8- 015.26 : 176.1 Quercus spp. + 284.1--081.6 + 443.3 + 829.19 Water repellents + 845.53--814.7.

Subject Codes: F84 F284 ; F44331 ; F8122 ; F813 ; F814 ; F8291 ; F9462

119 **Process for Preservation of Stored Wood Chips**

Department of Agriculture, Washington, DC. (000584000)

Patent Application
AUTHOR: Springer, E. L.
G0782A2 Fld: 11L, 71R, 90 GRAI8010
Filed 8 Jun 79 15p
Rept No: PAT-APPL G 047 172
This Government owned invention available for U.S. licensing and, possibly, for foreign licensing. Copy of application available NTIS.

Abstract: The invention is a process which inhibits the loss of wood substance, tall oil and chip brighteners in wood chips during storage. The process involves treating wood chips with a dilute aqueous solution of formaldehyde and a phenol. This treatment effectively prevents the evolution of heat from the chips and microbial growth and thus limits chip deterioration and brightness loss while preserving tall oil. The process is also effective in preserving other moist plant-derived raw materials.

Descriptors: *Chips, *Wood preservatives, *Patent applications, Storage, Phenols, Formaldehyde, Biodeterioration, Microorganisms

Identifiers: NTISGPAG

PB80-141419 NTIS Prices: PC A02/MF A01

687457 F0038-01716 1

120 **Progress in soil zoology. Proceedings of the 5th International Colloquium on Soil Zoology held in Prague September 17-22, 1973.**

Vanek, J. (Editor); Stebayeva, S. K. ; Wauthy, G. ; Lebrun, P. ; Kudrjasheva, I. V. ; Cykowski, R. K. ; Reichle, E. ; McBrayer, J. F. ; Ausmus, S. ; Drift, J. van der ; Szujecki, A. ; Kaczmarek, M. ; Gorny, M. ; Wood, T. G. ; Lasebikan, B. A. ; Marcuzzi, G. ; Turchetto Lafisca, M.

Publ: The Hague, Netherlands; Dr. W. Junk, B.V.
1975. 630 pp. ISBN 90-6193-025-1
Languages: En, De, Fr
many ref. HSB

Comprises 67 papers, of which 14 are of forestry interest: Phytogenic microstructure of Collembola associations in steppes and forests of Siberia (S.K. Stebayeva; 7 ref.); A comparison of the oribatid communities of the litter of (10 Belgian) Oak forests (G. Wauthy and P. Lebrun; Fr; 9 ref.); The soil fauna of Oak forests of the wooded steppes (I.V. Kudrjasheva; De; 8 ref.); Dominant Coleoptera in the ground layer of the meadow and forest ecotone (R.K. Cykowski; De; 4 ref.); Ecological energetics of decomposer invertebrates in a deciduous forest and total respiration budget (E. Reichle, J.F. McBrayer and S. Ausmus; 16 ref.); The significance of the millipede Glomeris marginata (Villers) for Oak-litter decomposition and an approach to its part in energy flow (J. van der Drift; 4 ref.); Influence of brushwood and undergrowth upon distribution of litter beetles in poor Pine forests (A. Szujecki; 4 ref.); Influence of humidity and specific interactions on collembolan populations in a Pine forest (M. Kaczmarek; 5 ref.); Studies on the influence of industrial pollution on soil animals in Pine stands, aims and methods of the soil-block model experiment (M. Gorny; 4 ref.); The effects of clearing and grazing on the termite fauna (Isoptera) of tropical savannas and woodlands (T.G. Wood; 22 ref.); The effect of clearing on the soil arthropods of a Nigerian rain forest (B.A. Lasebikan; 11 ref.); and Observations on the digestive enzymes of some litter-feeding animals (G. Marcuzzi and M. Turchetto Lafisca; 6 ref.). Two other papers are noticed separately in FA.

Descriptors: Coleoptera; Collembola; Oribatidae; Glomeris; marginata; Pinus; spp.; soil; fauna; litter; humus; Quercus; conferences, symposia; soil biology; respiration; litter, forest; flora and fauna; decomposition; mites; myriapods; termites

Identifiers: USSR ; Belgium ; Nigeria
DC No: 114.67/68 + 971
Subject Codes: F11467 F971 ; F1143

121 **Protectant for Wood**

Department of Agriculture, Washington, D.C. (108 800)

Patent Application
AUTHOR: Jurd, Leonard; Bultman, John D.
C6963B3 Fld: 11L, 13J, 90B*, 71R*, 47A GRAI7618
Filed 9 Apr 76 8p*
Rept No: PAT-APPL-675 104
Monitor: 18
This Government-owned invention available for U.S. licensing and, possibly, for foreign licensing. Copy of application available NTIS.

Abstract: According to the patent application, substances, particularly wood, which are normally subject to deterioration due to marine borers, are preserved by applying to the substance a dibutylbenzylphenol.

Descriptors: *Patent applications, *Wood preservatives, *Marine borer prevention, Biodeterioration, Water pollution control, Carcinogens, Solubility, Phenols

Identifiers: Environmental chemical substitutes, *Phenol/benzyl-dibutyl, NTISGPAG

PB-254 004/5ST NTIS Prices: PC A02/MF A01

138242 ID NO.- EI71X038242

122 **Protection of sensitive components from microbial contamination**

BENGSON MH; GILLIS JR
General Electric Co, King of Prussia, Pa
Biodeterioration of Materials, Microbiological and Allied Aspects. Proc of 1st Int Biodeterioration Symp Sept 9-14 1968, Southampton Univ, Engl, p 99-110
The protection of sterilized parts and components is of importance to the Aerospace industry. Constituting particular problems are the internal portions of many parts where resterilization is extremely costly or impractical. The Biosciences Operation of the General Electric Company has studied penetration of microorganisms into a number of materials. A number of materials, previously considered impervious to microorganism passage have been shown to harbor viable microorganisms that could only have been introduced by surface penetration.
DESCRIPTORS: *BIOENGINEERING, (PLASTICS, Degradation), (WOOD, Fungus Attack), (RUBBER, SYNTHETIC, Silicone), GRAPHITE.
CARD ALERT: 000

123 **Properties and Preservation of Wood and New Materials from Wood**

National Science Foundation, Washington, D.C. Special Foreign Currency Science Information Program.
AUTHOR: Bazhenov, V. A.
A1385J1 Fld: 11L, 71R USGRDR7103
1970 163p*
Rept No: SFCSI-Agr(TT-67-59065)
Contract: NSF-C466
Trans. of mono. Svoistva Drevesiny, ee Zashchita i Novye Drevesnye Materialy, Moscow, 1966.

Abstract: Contents: Moisture distribution in growing trunks of the main varieties of East Siberian trees; Liquid permeability of wood of freshly cut conifers; Increase in nitrogen and liquid permeability of coniferous wood at high temperature; Dependence of physicomechanical properties of Siberian cedar wood on growth conditions; Shrinkage of wood across the fibers during adsorption; Stabilization of shape and size of wood with furfuryl alcohol; Stabilization of shape and size of pressed wood; Effect of various antiseptics on physicomechanical properties of pine wood; Effect of acidity of synthetic nutrient medium on the growth of certain types of wood-destroying fungi; Some remarks on the method of bioassay of wood; Biaxial pressing of wood during different types of heat treatment; Anisotrophy of shrinkage and piezoelectric properties of pressed birch wood; Piezoelectric properties of wood-shaving boards; Binderless plastics from larch-wood particles; and Effect of 'steam shock' on strength and quality of binderless plastics from larch-wood particles.

Descriptors: (*Wood, Properties), (*Pressboard, Properties), Moisture, Shrinkage, Permeability, Plant growth, Piezoelectricity, Larch wood, Sterilization, Birch wood, Pine wood, Fungus deterioration, Plastics, USSR, Translations

Identifiers: Cedar wood, Furfuryl alcohols

TT-67-59065 NTIS Prices: PC A08/MF A01

152541 ID NO. - EI7105052541

124 **Protection of timber, an introduction into some problems**

BECKER GHP

Bundesanstalt fuer Materialpruefung, Berlin-Dahlem, Germany

Biodeterioration of Materials, Microbiological and Allied Aspects Proc of 1st Int Biodeterioration Symp Sept 9-14 1968, Southampton Univ, Engl, p 205-22

The most important organic preservative is creosote, the high boiling constituents of which must be sufficient to provide total efficacy. Individual organic compounds used as fungicides in suitable organic solvents are pentachlorophenol and special tin compounds. This survey contains comparative data based on laboratory tests and practical experience. The value and the limitations of laboratory methods are briefly discussed.

DESCRIPTORS: (*WOOD, *Fungus Attack), FUNGICIDES.

CARD ALERT: 000

770146 F0038-05918 1

125 **Properties of tropical woods.**

Properties, uses, and marketing of tropical timber Vol. 2.

Freas, A. D. ; Noack, D. ; Morellet, J. ; Ghilardi, E. ; Chena, P. ; Oddone, O. ; Kartasujana, I. ; Martawijaya, A. ; Collardet, J. ; Liese, W. ; Kadir, K. ; Supriana, N.

1974, 41-84

See Also: 770144 F0038-05916

Languages: En, Fr

FAO Report No. FO : MISC/74/7. PR

(Cf. preceding abstract) Eleven papers, in English unless otherwise stated, presented in two sections. (1) Identification and evaluation of properties and characteristics Property evaluations for tropical woods (A.D. Freas, 5 ref.); Identification and evaluation of wood properties and characteristics: report on ongoing activities in IUFRO (D. Noack); Centralization and use of results from tests on tropical woods by various research centres (J. Morellet, Fr); Identification and evaluation of wood properties in Brazil (E. Ghilardi); Export promotion and evaluation of wood properties in Paraguay (P. Chena and O. Oddone, 5 ref.); and Commercial woods of Indonesia - short notes on their properties and uses (I. Kartasugana and A. Martawijaya). (2) Improvement of unfavourable properties - Improvement of properties in some tropical species (J. Collardet, Fr); Preservation of timber for local use and for export (W. Liese); Wood preservation in Indonesia - A. Notes on the resistance of several wood species against dry wood termites Cryptotermes spp. (A. Martawijaya, K. Kadir and I. Kartasujana); Wood preservation in Indonesia - B. Some aspects of insecticide and fungicide uses at logging areas in West Kalimantan (N. Supriana, 2 ref.); and Wood preservation in Indonesia - C. Boron penetration in ten Indonesian wood species treated by diffusion process (A. Martawijaya and N. Supriana, 10 ref.).

Descriptors: conferences, symposia; tropical timbers; wood; general information on timbers; preservation, wood etc.; Brazil; timbers; Paraguay; Indonesia; preservation, wood

Identifiers: Tropical

DC No: 8 + 81 + 971 + 7/8 + 841

Subject Codes: F8 F971 ; F841

877134 ID NO.- EI7810077134

126 **PULPING WESTERN HEMLOCK DECAYED BY WHITE-ROT FUNGI $EM DASH$ 2.**

Hunt, Kenneth

Can For Serv, Vancouver, BC

Pulp Pap Can v 79 n 6 Jun 1978 p 75, 77-80 CODEN: PPCAAA

In the reported experiments, western hemlock $left bracket$ Tsuga heterophylla (Raf.) Sarg. $right bracket$ wood from Revelstoke, B. C.' , containing decay caused by pocket-rot $left bracket$ Fomes pini (Thore) Lloyd $right bracket$ and stringy-rot (Echinodontium tinctorium Ell. and Ever.) fungi was pulped by the kraft process to permanganate number 20. For both types of decay, the incipient-decay wood gave yields similar to or slightly less than sound wood; intermediate decay averaged about 4% less, o. d. pulp, and advanced decay up to 16% o. d. less pulp than sound wood. Decay caused by the stringy rot appeared to cause greater pulp yield loss than decay caused by the pocket rot. The strength values of pulps from incipient and intermediate decay overlapped with those of pulps from sound wood; markedly lower strengths were found for pulps from advanced-decay wood. 20 refs.

DESCRIPTORS: (*PULP MANUFACTURE, *Cooking), (WOOD, Fungus Attack), (PULP MATERIALS, Wood), (PULP, Physical Properties),

IDENTIFIERS: WESTERN HEMLOCK, WHITE-ROT FUNGI

CARD ALERT: 811, 931

594858 F0037-05804 1

127 **Research in wood protection at the Princes Risborough laboratory 1973 and 1974.**

Baker, J. M. ; Miller, E. R. ; Morgan, J. W. W. ; Savory, J. G.

Current Paper, Building Research Establishment, 1975. No. CP 88/75, 16 pp.

Languages: En

14 ref.

Emphasis has been placed on the maintenance of wood and the environmental effect of non-agricultural pesticides. Some of the main projects in progress within the Protection Division are described, viz: physical factors affecting penetration of gases and liquids into softwoods; improvements in the analysis of mixtures of PCP and gamma -HCH by gas/liquid chromatography; field trials of preserved timber placed out of ground contact; laboratory determination of toxic values against fungi; a survey of the distribution of Hylotrupes bajulus in SE England; control of death-watch beetle (Xestobium rufovillosum) infestations in ancient buildings; dieldrin resistance in the tropical wood-boring beetle Minthea rugicollis; protection by finishes and coatings; and the exterior performance of building boards.

Descriptors: Hylotrupes; bajulus; Minthea; rugicollis; Xestobium; rufovillosum; preservation, wood etc.; research; preservative-treated wood; preservative penetration and fixation; field and service trials; laboratory testing; preservatives, wood; analysis; PCP; BHC; combined with finishes; borers, wood; prevention; control

DC No: (42-11)(--841--01 + 841--01 + 945.4).

Subject Codes: F841 F9454 ; F8452

966720 ID NO.- EI790866720

128 **RESISTANCE OF WOOD FROM PARAQUAT-TREATED SOUTHERN PINES TO SUBTERRANEAN TERMITES, DECAY FUNGI, AND MARINE BORERS.**

Beal, Raymond H.; Amburgey, Terry L.; Bultman, John D.; Roberts, Donald R.

USDA for Serv, Gulfport, Miss

For Prod J v 29 n 4 Apr 1979 p 35-38 CODEN: FPJOAB

The objective of the study described was to field test the resistance of stakes cut from paraquat-treated and untreated slash, longleaf, and loblolly pines to subterranean termites, wood-decay fungi, and marine borers. Results from this study are used to determine whether this line of research should be expanded to include post-size test specimens. 6 refs.

DESCRIPTORS: (*WOOD, *Fungus Attack), WOOD PRESERVATION, FUNGICIDES.

CARD ALERT: 811, 804

79001819 79000946 Holding Library: AGL

129 Results and experiences of Vapam (sodium methyldithiocarbamate) internal treatment (Poria monticola, wood decay fungi, Pseudotsuga menziesii, wood utility poles).

Lindgren, P.:

Fort Collins, , Colo., Colorado State University

Proceedings: Wood Pole InstituteColorado State University. -Wood Pole Institute. 1975 (pub. Jan 1976). (6th) . 1975 (pub. Jan 1976). p. 175-179. ill.

ISSN 0588-4683:

NAL: TS903.A1C6

Languages: ENGLISH

Subfile: OTHER US .(NOT EXP STN, EXT, USDA; SINCE 12/76):

Document Type: ARTICLE

Section Headings: FOREST INDUSTRIES(3520); PLANT FUNGUS DISEASES AND CONTROL(4505)

130 **Selection, Production, Procurement and Use of Preservative-Treated Wood, Supplementing Federal Specification TT-W-571**

Forest Products Lab Madison Wis (141700)

General technical rept.
AUTHOR: Gjovik, Lee R.; Baechler, Roy H.
FD873L1 Fld 11L, 13H, 71R, 94G GRA17810
1977 39p
Rept No: FSGTR FPL 15
Monitor: 18

Abstract: Because this discussion is concerned primarily with chemical treatments of wood to prevent its destruction by living organisms, the nonpreservative aspects of wood protection will receive only casual mention. This paper has the same limitation on subject matter as Federal Specification TT-W-571, to which it may be considered supplemental.

Descriptors: *Wood, *Preservatives, *Specifications, Protective treatments, Fungus deterioration, Quality assurance, Government procurement, Inspection, Handling, Chemicals, Moisture, Temperature, Termites, Marine borers

Identifiers: NTISDODXA

AD-A050 440/7ST NTIS Prices: PC A03/MF A01

1219378 M0059-04917 1

131 **Session 6B. Control of phycomycetes.**

Proceedings of the 1979 British Crop Protection Conference Pests and Diseases (10th British Insecticide and Fungicide Conference). Brighton, England, 19-22 November 1979. Vols. 1 and 2. Research Reports.

Smith, P. M. ; Beach, B. G. W. ; Smith, J. M. ; Tomlinson, J. A. ; Faithfull, E. M. ; Chalandon, A. ; Crisinel, P. ; Horriere, D. ; King, J. M. ; Gallinelli, G. ; Absi, M.

Publ: London, UK: British Crop Protection Council.
1979, 303-359
See Also: 1219371 M0059-04910
Languages: En

The following papers are noted: a. Smith, P.M. (Glasshouse Crops Res. Inst., Littlehampton, Sussex, UK). Chemical control of Phytophthora cinnamomi in ornamental woody species (303-309, 6 ref., 5 tab.). Cu and Cl-releasing materials were the most fungitoxic of those tested against P. cinnamomi in water. Etridiazole, aluminium tris(ethyl phosphonate), sodium ethyl phosphonate and furalaxyl were the most effective of 8 compounds when applied as protectant drenches to roots of Chamaecyparis lawsoniana cv. Ellwoodii, for the control of infection by zoospores. Furalaxyl showed the longest residual protectant activity but, irrespective of fungicide treatment, disease incidence increased with increasing amount of inoculum. None of the materials applied as a single drench eradicated P. cinnamomi in soil infested with root debris. b. Absi, M. (Du Pont de Nemours Int. S.A., Geneva, Switzerland). 2-cyano-N-((ethylamino)carbonyl)-2-(methoxyimino)acetamide (DPX 3217), a new fungicide for the control of tomato and potato late blight, hop downy mildew and other Peronosporales (311-318, 4 ref., 7 tab.). Results from Europe show that in mixtures with reduced rates of contact fungicides, this compound gave good control of P. infestans and Pseudoperonospora humuli. c. Beach, B.G.W.; Chalandon, A.; Gallinelli, G.; Horriere, D. (May & Baker Ltd., Ongar Res. Sta., Essex, UK). The control of various Phytophthora diseases in tropical crops with aluminium tris(ethyl phosphonate) (319-329, 18 ref., 11 tab.). In trials with pineapple, preplanting dips and foliar treatments with this new systemic fungicide gave excellent long term protection against P. root and heart rot. Foliar sprays controlled gummosis and root rot of citrus (P. nicotianae var. parasitica and P. citrophthora) and collar rot of avocado (P. cinnamomi). Black stripe of rubber (P. spp.) was controlled by painting the product on to the tapping panel. Good results have also been given against P. spp. on orchids, pepper (Piper nigrum), cacao and various other tree crops. d. Smith, J.M. (Ciba-Geigy Agrochemicals, Whittlesford, Cambridge, UK). The use of metalaxyl for the control of downy mildew diseases (331-339, 5 ref., 3 fig., 5 tab.). Trials with potatoes showed superior blight (P. infestans) control, relative to the standard, by metalaxyl with or without mancozeb. In hop and Brassica trials virtually complete control of Pseudoperonospora humuli and Peronospora parasitica was achieved by single soil applications. e.

Tomlinson, J.A.; Faithfull, E.M. (Natn. Veg. Res. Sta., Wellesbourne, Warwick, UK). The use of surfactants for the control of lettuce big-vein disease (341-346, 11 ref., 2 tab.). When applied to the nutrient every 4 days Agral at 20 p.p.m. controlled the vector, Olpidium brassicae, in a glasshouse lettuce crop. Carbendazim at 0.025 g/block controlled the disease and prevented Olpidium root infection of lettuce grown in 4.3 cm3 peat blocks containing O. resting spores. f. Chalandon, A.; Crisinel, P.; Horriere, D.; Beach, B.G.W. (Rhone-Poulenc Agrochim., Lyon, France). Control of vine downy mildew with formulations of aluminium tris(ethyl phosphonate) 347-252, 7 ref., 7 tab.). Formulations of this compound with folpet or mancozeb gave better control of Plasmopara viticola than contact fungicides, in trials on grapevine in Europe, S. Africa and Australia. g. King, J.M. (Processors & Growers Res. Org., Peterborough, UK). Experiments for the control of downy mildew (Peronospora viciae) in vining peas and broad beans (353-359, 8 ref., 5 tab.). Acceptable levels of control were not achieved in peas using aluminium tris(ethyl phosphonate) + mancozeb, metalaxyl, metalaxyl + mancozeb, milfuram or milfuram + maneb. Seed treatments of broad bean (Vicia faba) with aluminium tris(ethyl phosphonate), furalaxyl and metalaxyl gave partial control of primary systemic infections in seedlings which reduced later secondary infection.

Descriptors: Chamaecyparis lawsoniana; tomato; potato; hop; pineapple; citrus; avocado; rubber; orchid; pepper, black; cacao; Brassica; lettuce; grapevine; pea; bean, broad; phycomycetes; control, conference papers; Phytophthora cinnamomi; Phytophthora infestans; Pseudoperonospora humuli; Phytophthora; Phytophthora nicotianae var. parasitica; Phytophthora citrophthora; Peronospora parasitica; Olpidium brassicae; Plasmopara viticola; Peronospora viciae; control; copper; etridiazole; aluminium tris (ethyl phosphonate); sodium ethyl phosphonate; furalaxyl; DPX 3217; metalaxyl; mancozeb; agral; carbendazim; folpet; milfuram; maneb; against

Subject Codes: M142 M13 ; M15 ; M17 ; M21 ; M23 ; M25 ; M28 ; M33 ; M35

400359 F0036-03614 1

132 **Simple methods of improving dimensional stability. (1) The heat-pressure treatment - a process with good practical prospects. (2) Treatment of wood-based materials, technology, economics.**

Burmester, A.

Holz- und Kunststoffverarbeitung, 1974, 9.8;9, 534-538; 610-617

Languages: De

11 ref. BLL

Part I describes the effects of FWD (moisture/heat/pressure treatment) on solid wood, including improvement of dimensional stability, chemical changes, and effects on colour and strength properties (cf. FA 35, 1880). Part II describes tests with various materials. Treated veneers of Beech and tropical species (Triplochiton scleroxylon, Ceiba pentandra, Entandrophragma angolense and Pterygota sp.), showed greatly improved dimensional stability. Beech plywood exhibited great warping resistance, and particle boards made with treated chips and various binders (cf. FA 35, 7297) showed improved resistance to deformation. In fungus cellar tests in which boards made with an isocyanate binder were exposed to decay by Coniophora puteana and Poria vaillantii, all boards made from pre-treated chips showed improved decay resistance. In boards made from chips treated for 5 hours the weight losses after 4 months were not significant. Moisture content remained throughout below the 16% necessary for fungal growth. The technology of treatments (preferably combined with seasoning for sawtimber) is discussed, and some estimates on economics are given.

Descriptors: Fagus; sylvatica; wood; improved wood; particle board; Triplochiton; scleroxylon; Ceiba; pentandra; Entandrophragma; angolense; Pterygota; spp.; compressed; physical and mechanical properties; resistance to biological attack; manufacture; resistance to insects and fungi

DC No: 842(+ 832.282 + 862.2-082 + 844.2).

Subject Codes: F842 F8322 ; F8442 ; F862

133 79149489 80019651 Holding Library: AGL
Soft rot (Chaetomium globosum) development in beech (Fagus) and pine (Pinus) wood
Galadova, M.; Kozlik, I.
Bratislava, , Statny drevarsky vyskumny ustav.
Drevarsky vyskum. v. 23 (1) , 1978. p. 1-13. ill.
ISSN 0012-6136:
NAL: 99.82 D812
Languages: ENGLISH ; CZECH ; GERMAN ; RUSSIAN
13 ref
Geographic Location: Czechoslovakia
Document Type: ARTICLE
Section Headings: PLANT FUNGUS DISEASES AND CONTROL(4505)

134 138255 ID NO.- EI71X038255
Some aspects of cellulose degradation in lignified cell walls
BAILEY PJ; LIESE W; ROESCH R
Institut fuer Makromolekulare Chemie, Frieburg im Breisgau, West
Biodeterioration of Materials, Microbiological and Allied Aspects. Proc of 1st Int Biodeterioration Symp Sept 9-14 1968, Southampton Univ, Engl, p 546-57
During the so- called brown- rot degradation of wood the individual cell wall components are utilized in a similar manner to that occurring in soft- rot but brown- rot occurs commonly in both hardwoods and softwoods. The exact way in which the cellulose in lignified cell walls is protected from cellulolytic microorganisms requires further consideration and new results are presented which permit discussion on the mechanism of cellulose degradation in lignified cell walls.
DESCRIPTORS: *CELLULOSE.
CARD ALERT: 000

135 138240 ID NO.- EI71X038240
Some techniques to investigate the colonization of cellulosic and wood substrates
EGGINS HOW; MALIK KA; SHARP RF
Aston Univ in Birmingham, England
Biodeterioration of Materials, Microbiological and Allied Aspects. Proc of 1st Int Biodeterioration Symp Sept 9-14 1968, Southampton Univ, Engl, p 120-30
Methods for the isolation of cellulolytic fungi are briefly reviewed. The problems concerning the initial colonizaton of cellulosic (including wood) substrates are then discussed, particularly from the viewpoint of ancillary nutrients and physical conditions. To investigate such ecological problems some new techniques have been evolved and their working is fully described. Details are given concerning the controlled interaction of colonizers and the advantages of selective perfusion solutions are also mentioned.
DESCRIPTORS: *BIOENGINEERING, CELLULOSE, (WOOD, Fungus Attack),
CARD ALERT: 000

136 79003399 79003216 Holding Library: AGL
Spore germination of Gloeophyllum trabeum on wood in relation to mass of the sample (Pinus taeda, Pinus ponderosa, Populus tremuloides, wood decay fungi).
Schmidt, E.L.; French, D.W.
Beltsville, , Md., Plant Science Research Division, Agricultural Research Service, U.S. Dept. of Agriculture
Plant disease reporter v. 63 (1) , Jan 1979. p. 30-31.
ISSN 0032-0811:
NAL: 1.9 P69P
Languages: ENGLISH
4 ref
Subfile: USDA .(US DEPT. AGR);
Document Type: ARTICLE
Section Headings: FOREST INDUSTRIES(3520); PLANT FUNGUS DISEASES AND CONTROL(4505)

137 **Standardization in the Field of Protection of Materials and Manufactured Products from Biodeterioration**

Army Foreign Science and Technology Center Charlottesville Va (038300)
AUTHOR: Bogolyubova, Z. S.; Cannyshkina, E. V.; Dyachenko, A. V.; Kobrinskaya, O. Ya.
C3681I1 Fld: 6M, 71L, 57K GRAI7425
Oct 74 72p
Rept No: FSTC-HT-23-1716-73
Monitor: 18
Trans. from Standartizatsiya i Kachestvo Produktsii (USSR) 97p 1972.

Abstract: The work is a summary of information which covers the feasibility and possibilities of developing standards which establish methods of testing materials and manufactured products for bioresistance, and also the requirements for ways and means of protecting them from biodeterioration. The summary consists of four sections in which analyses are given of materials subject to biodeterioration, and conclusions are drawn on the possibility of creating a set of state standards in this field. (Modified author abstract)

Descriptors: *Biodeterioration, *Materials, Resistance, Preservation, Protective treatments, Fungusproofing, Mothproofing, Microorganisms, Insects, Paints, Wood, Leather, Temperature, Humidity, USSR, Translations

Identifiers: Rotproofing, NTISDODA

AD-786 835/9ST NTIS Prices: PC A04/MF A01

138. Withdrawn.

79086240 79074399 Holding Library: AGL
139 Sterilization method effects on germination of wood decay fungus spores (Trametes hispida, Poria tenuis, Gloeophyllum trabeum) observed by the contact agar method.
Schmidt, E.L.; French, D.W.
St. Paul, Minn., , American Phytopathological Society.
Phytopathology. v. 69 -(7) , July 1979. p. 688-689. ill.
ISSN 0031-949X:
NAL: 464.8 P56
Languages: ENGLISH
11 ref
Subfile: OTHER US .(NOT EXP STN, EXT, USDA; SINCE 12/76):
Document Type: ARTICLE
Section Headings: FOREST INDUSTRIES(3520)

140 79065383 79054090 Holding Library: AGL
Stilbene-dye labeling of basidiospores of wood-decay fungi (Trametes hispida, Poria tenuis, Gloeophyllum trabeum)
Schmidt, E.L.; French, D.W.
Bronx, , The New York Botanical Garden
Mycologia v. 71 (3) , May/June 1979. p. 627-633. ill.
ISSN 0027-5514:
NAL: 450 M99
Languages: ENGLISH
7 ref
Subfile: OTHER US .(NOT EXP STN, EXT, USDA; SINCE 12/76);
Document Type: ARTICLE
Section Headings: FOREST INDUSTRIES(3520); PLANT FUNGUS DISEASES AND CONTROL(4505)

141 363685 F0036-01141 1
Studies on tropical woods II. On the species and oxidation of lignins.
Shimoda, Y. ; Kobayashi, F. ; Kawamura, I.
Research Bulletin of the Faculty of Agriculture, Gifu University, 1973, No. 34, 169-175
See Also: 363684
Languages: Ja Summary Languages: en
19 ref.
Milled wood lignins prepared from three groups of woods, viz. (a) conifers, (b) temperate-zone hardwoods and (c) tropical hardwoods (Eucalyptus spp.) were subjected to methylation and permanganate oxidation. The aromatic carboxylic acids of the degradation products of these lignins were methylated with diazomethane and were analysed by gas/liquid chromatography. The chromatograms revealed the presence of considerable amounts of anisic acid and 4-methoxyisophthalic acid in the degradation products of the lignin of (c). Structural and chemical differences between the lignins of (b) and (c) are discussed. The tables have English captions.
Descriptors: Eucalyptus; spp.; wood; chemistry; lignin; tropical timbers
DC No: 813.11(--174(213) + 176.1 Eucalyptus spp.).
Subject Codes: F8131

142 79036021 79028630 Holding Library: AGL
Susceptibility of (the test fungus) Coniophora puteana to some wood preservatives (Sodium fluoride, orthoboric acid, phenol pentachloride)
Wrazliwosc grzyba Coniophora puteana na niektore srodki ochrony drewna
Lutomski, K.;
Sympozjum Ochrony Drewna 9th Rogow 1976
Warszawa, , Wydzial Nauk Rolniczych i Lesnych, Polska Akademia Nauk
Zeszyty problemowe postepow nauk rolniczych 1978. (209) , 1978. p. 167-171. ill.
ISSN 0084-5477:
NAL: 20.5 Z5
6 ref
Document Type: ARTICLE
Section Headings: FOREST INDUSTRIES(3520)

143 **Swedish Forest Products Research Laboratory, 1972/73**

Svenska Traforskningsinstitutet, Stockholm.
C369513 Fld: 11L, 71R GRAI7425
1973 18p
Monitor: 18

Abstract: The report reviews several research projects being conducted by the Swedish Forest Products Research Laboratory. Topics include: Decomposition of carbohydrates to colored substances during pulping and aging; enzyme mechanisms of wood degradation by white-rot fungi, optical evaluation device for mechanical pulping; production control in pulp and paper; mechanical pulping studies; recovery furnace efficiency in chemical pulping; paper and board packaging materials, tissue manufacture; sheet formations, breaking mechanisms in moving paper webs; coated paper and paperboard; water pollution effect of wood dissolution during pressurized refining; dry process production of fiber building boards; connecting nail plates for timber trusses; timber grading.

Descriptors: *Wood products, Fiberboards, Pulping, Papermaking , Mechanical pulps, Chemical pulps, Sweden, Process control, Enzymes, Biodeterioration, Paper coating processes, Carbohydrates, Decomposition

Identifiers: *Scientific research, NTISSWFPRL

PB-235 680/6ST NTIS Prices: PC A02/MF A01

012946 ID NO.- EI70X012946

144 **Testing of resistance of wood preservatives to fungus attack. (Die Pruefung der Widerstandsfaehigkeit von Holzchutzmitteln gegen Moderfaeule)**

WAELCHILI O

Schweizer Archiv v 35 n 3 Mar 1969 p 73-9

Recommended test consists of burying specimens in soil with high and constant controlled microbiological activity; weight loss per time and changes in bending strength of specimen are determined; specimen type and preparation are described; examples of test results are given. 23 refs. In German.

DESCRIPTORS: (*WOOD, *Fungus Attack).

CARD ALERT: 222

1183486 F1003-01793 1

145 **The action of wood preservatives in relation to wood anatomy.**

(Abstract).

International Association of Wood Anatomists: Abstracts of papers to be presented at the wood anatomy congress of the Afro-European regional group of the International Association of Wood Anatomists, the Wood Quality Subject Group of IUFRO division V, and of the Plant Morphology and Anatomy Section of the Royal Botanical Society of the Netherlands, held at the Royal Tropical Institute, Amsterdam, Aug. 27-30, 1979.

Dickinson, D. J. ; Levy, J. F.

Dep. Bot., Imperial Coll. Sci. & Tech., London, UK.

IAWA Bulletin, 1979, No. 2/3, 36

See Also: 1183475 F1003-01782

Languages: En

The effects of wood inhabiting fungi on the structure of wood cell walls are now well established. The effectiveness of wood preservatives depends on their penetration in the wood structure and particularly into the layers of the cell walls. Their ultimate distribution governs the type of decay organism which finally destroys the wood. Authors' summary.

Descriptors: preservation, wood etc.; anatomical factors; preservative-treated wood; preservative penetration and fixation

DC No: FPA 5.5 + 3.1 ; See IAWA (1979)

Subject Codes: F1031 F1055

79036012 79028621 Holding Library: AGL

146 **The basis for taxonomy of Chaetomiales fungi (including species causing wood rot)**

Podstawy taksonomii grzybow rzedu Chaetomiales

Rudnicka-Jezierska, W.;

Sympozjum Ochrony Drewna 9th Rogow 1976

Warszawa, , Wydzial Nauk Rolniczych i Lesnych, Polska Akademia Nauk

Zeszyty problemowe postepow nauk rolniczych 1978. (209) , 1978. p. 81-90. ill.

ISSN 0084-5477:

NAL: 20.5 Z5

14 ref

Document Type: ARTICLE

Section Headings: PLANT TAXONOMY AND GEOGRAPHY(4010); PLANT FUNGUS DISEASES AND CONTROL(4505)

746713 F0038-04623 1

147 **The distribution and diversity of soil fauna.**

Wallwork, J. A.

Westfield College, London, UK.

Publ: London, UK; Academic Press.

1976, xii + 355 pp. ISBN 0-12-733350-9

Languages: En

many ref. Price 11 ORE

A companion volume of Ecology of soil animals (see FA 31, 5798), dealing with the communities of soil animals occupying different habitats. Chapters of particular forestry interest are: The forest soil fauna (46 ref.); and Fauna of decaying wood, rocks and trees (27 ref.). Differences between the coniferous and broadleaved forest faunas and different soil types are reviewed with special reference to northern Europe and some emphasis on mite communities. It is shown that the forest soil fauna ranges upwards into the sheltered aerial vegetation, especially where organic matter does not accumulate at the soil surface (owing to competition for food): in tropical rain forests (only briefly considered) this sheltered zone extends into the crowns of understorey trees. The soil fauna of rocks and trees comprises the 'epigeal fauna' in the rooting zone of epiphytic vegetation.

Descriptors: soil biology; fauna; soil; bibliographies and reference works; decayed wood

Identifiers: Europe

DC No: 114.67/68 + 021

Subject Codes: F11467

148 80005201 80025370 Holding Library: AGL
The effect of microorganisms on raw (wood) materials during storage
Pengaruh mikroorganisma terhadap bahan baku dalam penyimpanan
Bratasida, L.;
Bandung, Indonesia, . Lembaga Penilitian Selulosa.
Berita selulosa v. 14 (4) , Dec 1978. p. 13-18. ill.
ISSN 0005-9145:
NAL: TS933.C4B4
Languages: INDONESIAN ; ENGLISH
10 ref
Geographic Location: Indonesia
Document Type: ARTICLE
Section Headings: FOREST INDUSTRIES(3520)

149 79038910 79031597 Holding Library: AGL
The health status of the mountain pine (Pinus (mugo) mughus Scop.) on the area of the Tatra National Park (Chiefly fungus diseases and insect pests)
Stan zdrowotny sosny kosowki (Pinus mughus Scop.) na terenie Tatrzanskiego Parku Narodowego
Lutyk, P.;
Warszawa, . Panstwowe Wydawnictwo Rolnicze i Lesne
Sylwan v. 122 (10) , Oct 1978. p. 51-57. ill.
ISSN 0039-7660:
NAL: 99.8 SY52
12 ref
Geographic Location: Poland
Document Type: ARTICLE
Section Headings: PLANT FUNGUS DISEASES AND CONTROL(4505); INSECT PESTS AND CONTROL, FOREST TREES AND WOOD PRODUCTS(4545)

150 79036011 79028620 Holding Library: AGL
The influence of ecological factors on occurence of fungi causing blue stain on pine wood
Wplyw czynnikow ekologicznych na wystepowanie grzybow sinizny drewna sosnowego
Tarocinski, E.; Zielinski, M.H.
Sympozjum Ochrony Drewna 9th Rogow 1976
Warszawa, . Wydzial Nauk Rolniczych i Lesnych, Polska Akademia Nauk
Zeszyty problemowe postepow nauk rolniczych 1978. (209) , 1978. p. 71-79. ill.
ISSN 0084-5477:
NAL: 20.5 Z5
5 ref
Document Type: ARTICLE
Section Headings: PLANT FUNGUS DISEASES AND CONTROL(4505); FOREST INDUSTRIES(3520)

151 **The Isolation of Lignin Degrading Tropical Microorganisms**

Miami Univ., Coral Gables, FL.*National Science Foundation, Washington, DC. Engineering and Applied Science. (004706000)

Progress rept. 1 May 76-31 May 77
AUTHOR: Scott, William E.; Roth, Frank J.
F2463A3 Fld: 11L, 6C, 6M, 71R, 57C, 71L, 57K GRAI7926
May 77 45p
Grant: NSF-AER76-07622
Monitor: NSF/RA-770294
See also PB-269 408.

Abstract: Progress in isolating microorganisms possessing ligninolytic and celluloytic properties is reported. One hundred sixty-nine decomposing wood specimens from tropical and subtropical areas were used. Three procedures were employed to isolate growth forms capable of metabolizing lignin and cellulose. Fungal isolates assayed for ligninase and cellulase activity appeared to belong predominately to the genera of Trichoderma, Fusarium, Gliolladium, Paecilomyces, and Penicillin. The majority of bacteria occur in Pseudomonas. Ligninase and cellulase assays on fungal isolates are tabulated. Results of the assays showed that 41 of these isolates produced significant growth on media containing Indulin as a source of carbon, whereas 49 of the 416 produced higher levels of cellulase. It would appear that the correlation between high cellulase activity and ligninolytic capacity, as measured by mycelial production, is not rigid and absolute. Selected isolates, chosen for their ability to grow upon a medium containing only lignin and mineral salts, are being tested utilizing relatively unmodified Bjorkman lignin as the sole source of carbon. The large number of fungal isolates studied indicated the need for a defined taxonomic study of these grown forms. Accordingly, a comprehensive taxonomic study of Trichoderma was conducted.

Descriptors: *Lignin, *Biodeterioration, *Wood pulp, *Microorganisms, Culture media, Substrates, Fungi, Bioassay, Cellulase, Removal, Separation, Wood products, Tropical regions, Cellulose

Identifiers: NTISNSFRA

PB-301 293/7ST NTIS Prices: PC A03/MF A01

152 **The Role of Ascomycete and Imperfect Fungi in Effecting the Degradation of Wood (O Roli Sumchatykh i Nesovershennykh Gribov v Razrushenii Drevesiny)**

Army Foreign Science and Technology Center Charlottesville Va (038300)
AUTHOR: Gorshin, S. N.; Krapivina, I. G.
A1782J3 Fld: 11L, 6F, 71R, 71L GRAI7108
3 Sep 70 12p
Rept No: FSTC-HT-23-982-70
Trans. of Mikologiya i Fitopatologiya (USSR) v3 n5 p477-480 1969. Errata sheet inserted.

Abstract: The effect of micromycetes on wood is very poorly understood and has received very little attention in the literature. In the study it was found that micromycetes represents a unified group with numerous ecological modifications which can be extremely similar in species composition. The numerous modifications are a result of their high flexibility, which makes it possible for them to reorganize their enzymatic system, adapting it to changing conditions. In wood, as the most readily available nutrients of the protoplast are used, the micromycetes, can convert to the use of less readily accessible nutrition sources, such as the lignin-cellulose complex of cell walls and thereby cause rot. With respect to the frequency of their occurrence, micromycetes as wood degraders considerably surpass macromycetes and yield to them only with respect to the rate at which the process transpires. In economic respects, micromycetes must be regarded as of great importance, and the antiseptics used for the protection of wood must be evaluated not only with respect to their effect on macromycetes, as is done at present, but also with respect to micromycetes. (Author)

Descriptors: (*Fungus deterioration, *Wood), Ascomycetes, USSR

Identifiers: Translations

AD-719 555 NTIS Prices: PC A02/MF A01

770217 F0038 05989 1

153 **The role of hardwood in marine construction.**

Brown, W. H.

Timber Review, 1976, No. 27, 12-14

Languages: En Summary Languages: fr, in, es, ja

1 ref

Wood for marine structures must show good overall strength, resistance to abrasion and impact on the side grain, and resistance to attack by marine borers and wood decay fungi (either by naturally occurring toxic substances or by preservative treatment). Results from exposure trials in various parts of the world indicate the suitability of a wide range of tropical hardwoods for use in seawater (cf. FA 35, 7230).

Descriptors: marine structures; water, wood used

Identifiers: Panama ; France ; Senegal ; UK ; Ghana ; Kenya

DC No: 833.8 + 176.1

Subject Codes: F8338

154 **Treatment of Wood with Butylene Oxide**

Department of Agriculture, Washington, D.C. (108 800)

Patent

AUTHOR: Rowell, Roger M.; Gutzmer, David I.

D1054F2 Fld: 11L, 7C, 90B, 99D, 71R GRAI7704

Filed 18 Jun 75, patented 12 Oct 76 5p

Rept No: PAT-APPL-587 923; PATENT-3 985 921

Monitor: 18

Supersedes PB-243 863.

This Government-owned invention available for U.S. licensing and, possibly, for foreign licensing. Copy of patent available Commissioner of Patents, Washington, D.C. 20231 $0.50.

Abstract: The reaction of cellulosic materials with butylene oxide under mildly alkaline conditions to increase resistance to fungi while improving dimensional stability is disclosed. Wood is first dried and then submerged in a treating chamber containing a solution of butylene oxide and thiethylamine. The chamber is heated and subjected to pressure, after which time the solution is drained and vacuum is applied to remove remaining excess reagent.

Descriptors: *Patents, *Cellulose, *Fungus resistant coatings, Wood, Chemical reactions, Stability, Epoxy compounds, Rot proofing, Deterioration, Butenes

Identifiers: PAT-CL-427-317, *Furan/tetrahydro, NTISGPAG

PB-259 836/5ST NTIS Prices: Not available NTIS

1183589 F1003-01905 1

155 **Tropical wood extractives' effect on durability, paint curing time and pulp sheet resin spotting.**

Yatagai, M. ; Takahashi, T.

For. & For. Prod. Res. Inst., Ushiku, Ibaraki, Japan.

Wood Science, 1980, 12,3, 176-182

Languages: En

9 ref.

Data are tabulated for 70 species from SE Asia and the Pacific regions, on: percent extraction with n-hexane, ether, acetone and methanol; wt. loss from decay by Tyromyces palustris, Coriolus versicolor and Pycnoporus coccineus (P. sanguineus); curing time of unsaturated polyester varnish; and number of resin spots on pulp sheets. Woods that contained more than 6% extractives showed a high resistance to fungal decay and a very large number of resin spots on pulp sheets. Woods that contained less than 4% extractives showed no decay resistance. Resin spots were sparse or absent where extractives content was less than 6%. Varnish curing time was not related to the amount of acetone extractives but it was related to the amount of n-hexane extractives.

Descriptors: Tyromyces palustris; Pycnoporus sanguineus; Campnosperma brevipetiolata; Spondias spp.; Alstonia spp.; Dyera spp.; Celtis spp.; Agathis spp.; Canarium spp.; Lophopetalum spp.; Gmelina spp.; Terminalia spp.; Octomeles sumatrana; Anisoptera glabra; Cotylelobium spp.; Dipterocarpus spp.; Dipterocarpus alatus; Dipterocarpus insularis; Dryobalanops spp.; Hopea pierrei; Shorea albida; Shorea negrosensis; Shorea spp.; Shorea hypochra; Vatica spp.; Endospermum medullosum; Nothofagus solandri; nothofagus menziesii; Homalium foetidum; Gonystylus bancanus; Calophyllum spp.; Cratoxylon arborescens; Eusideroxylon zwageri; Litsea spp.; Albizia falcataria; Intsia spp.; Koompassia excelsa; Parkia streptocarpa; Pseudosindora palustris; Machaerium pedicellatum; Michelia spp.; Dactylocladus stenostachys; Memecylon laevigatum; Aglaia spp.; Amoora spp.; Artocarpus spp.; Eucalyptus deglupta; Eugenia spp.; Melaleuca leucadendron; Tristania spp.; Dacrydium elatum; Podocarpus spp.; Xanthophyllum spp.; Anthocephalus chinensis; Pometia pinnata; Palaquium spp.; Planchonella spp.; Ailanthus spp.; Irvingia malayana; Pterocymbium beccarii; Heritiera spp.; Aquilaria malaccensis; Coriolus versicolor; resistance; Quercus spp.; wood; extractives; decay; durability; Tectona grandis; wood, chemical constituents; decay in wood; durability of wood, natural; laboratory testing

Identifiers: Tropical

DC No: FPA 3.3 + 3.4 + (213)

Subject Codes: F1033 F1034

79002245 79001492 Holding Library: AGL

156 Ultrastructure of basidiospore germination in Fomes fomentarius (White rot in wood of dead deciduous trees).

Tsuneda, I.; Kennedy, L.L.

Ottawa

Canadian journal of botany v. 56 (22) , Nov 15, 1978. p. 2865-2872. ill.

ISSN 0008-4026:

NAL: 470 C16C

Languages: ENGLISH ; FRENCH

24 ref

Document Type: ARTICLE

Section Headings: PLANT FUNGUS DISEASES AND CONTROL(4505); PLANT MORPHOLOGY, ANATOMY AND CYTOLOGY(4020)

157 **Use of Obtusaquinone as a Fungicide to Control Wood-Inhabiting Marine Fungi**

Department of the Navy Washington D C (110050)

Patent

AUTHOR: Bultman, John D.; Jurd, Leonard; Ritchie, Donald D.

C7265E3 Fld: 7C, 11L, 90B, 99D, 71R GRAI7622

Filed 25 Oct 74, patented 9 Dec 75 6p

Rept No: PAT-APPL-518 112; PATENT-3 925 558

Monitor: 18

This Government-owned invention available for U.S. licensing and, possibly, for foreign licensing. Copy of patent available Commissioner of Patents, Washington, D.C. 20231 $0.50.

Abstract: The invention relates generally to a fungicide which possesses decreased toxicity to large mammalia and plants, is highly resistant to leaching, provides a method for preventing the infestation of marine wood construction by marine borers, and provides a method of protecting wood from fungal attack.

Descriptors: *Patents, *Synthesis(Chemistry), *Quinones, *Marine borers, *Fungicides, Wood, Protective coatings, Fungus deterioration, Impregnation

Identifiers: PAT-CL-424-331, *Obtusaquinone, NTISGPN

AD-D002 788/8ST NTIS Price: Not available NTIS

79004768 79005055 Holding Library: AGL

158 Vectors (insects that transmit the pathogen) (Scolytus multistriatus, Hylurgopinus rufipes, Ceratocystis ulmi, Dutch elm disease, Ulmus americana).

Lanier, G.N.;

Ithaca, , Cornell Agricultural Experiment Station

Search-agriculture v. 8 (5) , 1978. p. 13-17. ill.

ISSN 0362-2754:

NAL: S95.E23

Languages: ENGLISH

Subfile: EXP STN .(STATE EXPER. STN);

Document Type: ARTICLE

Section Headings: INSECT PESTS AND CONTROL, FOREST TREES AND WOOD PRODUCTS(4545); PLANT FUNGUS DISEASES AND CONTROL(4505)

1225475 W0029-03556 1

159 **Weed control in sorghum in the tropics.**

Symposium, Weed Control in Tropical rops, Manila, 1978.

Shetty, S. V. R.

Int. Crops Res. Inst. Semi-Arid Tropics. 1-11-256 Begumpet, Hyderabad-500016, Andhra Pradesh, India.

81-100

Languages: En

many ref.

The critical period of crop-weed competition in sorghum is the first 20 to 30 days of crop growth. Hand weeding, the most common weed control method, is only effective when done in time. Mechanical methods such as interrow cultivation, rotary hoeing and flame cultivation are also used. Herbicides are beginning to be used where labour is expensive and physical and cultural methods difficult to practise. Atrazine and propazine are the most widely used pre em. herbicides and 2,4-D the most common post-em. Striga can only be controlled by combining a number of practices. The nature and extent of the weed problems in sorghum are reviewed and the various control measures are discussed. Particular emphasis is focused on weed management in sorghum-based cropping systems. The present status of weed research in sorghum-based cropping systems is reviewed and the need for an integrated weed management approach is stressed.

Descriptors: Sorghum bicolor (sorghum); weed control; cultural; integrated; chemical; atrazine; 2,4-D; propazine; Striga; usage; crops; cereals

Identifiers: India

Subject Codes: W10259Z12

79055009 79043542 Holding Library: AGL

160 Wood decays, root rots, and stand composition along an elevation gradient (Distribution of wood decaying fungi in mixed conifer forests in Idaho).
Hobbs, S.D.; Partridge, A.D.
Washington, , Society of American Foresters
Forest science v. 25 (1) , Mar 1979. p. 31-42. ill.
ISSN 0015-749X:
NAL: 99.8 F7632
Languages: ENGLISH
Bibliography p. 41-42
Geographic Location: Idaho
Subfile: USDA .(US DEPT. AGR);
Document Type: ARTICLE
Section Headings: PLANT FUNGUS DISEASES AND CONTROL(4505); PLANT ECOLOGY(4015)

770210 F0038-05982 1

161 **Wood in construction.**
Richardson, B A.
Penarth Res. Centre, Otterbourne Hill, Winchester, UK.
Publ: Hornby, Lancaster, UK; The Construction Press Ltd.
1976, 220 pp. ISBN 0-904406-14-8
Price, 8.75
Languages: En
PR
A general, practically oriented introduction and guide to the use of wood for structural purposes in the temperate zone, intended principally for wood technology students, architects and engineers. There are 5 chapters: Wood as a material (its merits, wood technology, and properties related to its use, with a general discussion of world wood resources); Converting trees to wood in service; Wood protection (organisms causing degradation and methods of preservation of wood); Wood utilization; and Commercial wood and wood products. A comprehensive list of over 600 commercial woods, is given in an appendix, giving their sources (including the tropics), local names, colour, uses and properties, and describing the preparation of an edge-punched card identification system.
Descriptors: wood; technology, general; general information on timbers; buildings; structural components
Identifiers: Temperate
DC No: 833 + 810
Subject Codes: F833 F810

162 **Wood Finishing: Water Repellents and Water-Repellent Preservatives. Revision**

Forest Products Lab Madison WI (141700)

Forest service research note
AUTHOR: Feist, William C.; Mraz, Edward A.
FO281K1 Fld: 11L, 71R GRAI7905
1978 8p
Rept No: FSRN-FPL-0124-REV
Monitor: 18
Prepared in cooperation with Wisconsin Univ., Madison.
Revision of report dated Aug 68, AD-674 403.

Abstract: Water plays a key role in the rapid weathering of wood exposed outdoors, in the performance of exterior finished wood, and in the decay or rotting of wood. Properly seasoned wood that stays dry is not subject to decay, to premature failure of paints and finishes, or to many of the other serious problems associated with weathering. There are some relatively simple wood treatments that can be used to slow down the pickup of water and help keep wood dry. These treatments are called water repellents (WR). When a preservative is added to a WR, it is called a water-repellent preservative (WRP). The composition of these two treating materials is very similar; both contain a substance that repels water (usually paraffin wax or related material), a resin or drying oil, and a solvent such as turpentine or mineral spirits. Addition of a preservative such as pentachlorophenol or copper naphthenate to a water repellent helps to protect wood surfaces against decay and mildew organisms.

Descriptors: *Wood, *Preservation, *Water repellents, *Preservatives, *Waterproofing, Protective coatings, Waxes, Metal compounds, Copper compounds, Phenols, Deterioration, Fungus deterioration

Identifiers: Paraffins, NTISDODXA

AD-A060 650/9ST NTIS Prices: PC A02/MF A01

79030823 79023000 Holding Library: AGL

163 **Wood inhabiting fungi in the nature reserve Raback at Kinnekulle**

Vedbeboende svampar fran Raback pa Kinnekulle
Hjortstam, K.;
Stockholm, . Swedish Botanical Society
Svensk botanisk tidskrift v. 72 (4) , 1978. p. 321-326.
ISSN 0039-646X:
NAL: 450 SV2
Languages: SWEDISH ; ENGLISH
6 ref
Geographic Location: Sweden
Document Type: ARTICLE
Section Headings: PLANT FUNGUS DISEASES AND CONTROL(4505)

164 **Wood Preservation (Citations from the NTIS Date Base)**

National Technical Information Service, Springfield, Va. (391 812)

Rept. for 1964-Jun 78
AUTHOR: Brown, Robena J.
E1872A3 Fld: 11L, 71R+, 86W GRAI7818
Jul 78 116p*
Monitor: 18
See also NTIS/PS-78/0663.

Abstract: The bibliography is a compilation of general research on wood preservation. Wood preservatives for use against attack by marine borers, fungus, and moisture decay are described. Wood treatment methods are also cited with some studies comparing their effectiveness. (Contains 111 abstracts)

Descriptors: +Bibliographies, +Wood presevatives, +Protective treatments, +Wood, Preservation, Creosote, Fungus deterioration, Marine borers, Termites, Waterproofing, Durability, Impregnation, Degradation, Pest control, Plywood, Pine wood, Effectiveness, Lumber, Abstracts

Identifiers: NTISNTISEN

NTIS/PS-78/0662/3ST NTIS Prices: PC NO1/MF NO1

165 **Wood Preservation (Citations from the Engineering Index Data Base)**

National Technical Information Service, Springfield, Va. (391 812)

Rept. for 1964-Jun 78
AUTHOR: Brown, Robena J.
E1872A4 Fld: 11L, 71R+, 86W GRAI7818
Jul 78 175p*
Monitor: 18
See also NTIS/PS-78/0662).

Abstract: These abstracts of worldwide research contain information on wood preservation. Studies describing the different types of wood preservatives used, treatment methods, and durability of the preservatives are cited. (Contains 168 abstracts)

Descriptors: +Bibliographies, +Wood preservatives, +Protective treatments, +Wood, Preservation, Creosote, Fungus deterioration, Marine borers, Termites, Waterproofing, Durability, Impregnation, Degradation, Pest control, Plywood, Pine wood, Effectiveness, Lumber, Abstracts

Identifiers: NTISNTISEI

NTIS/PS-78/0663/1ST NTIS Prices: PC NO1/MF NO1

1008789 ID NO. EI8001008789

166 **WOOD PRESERVATION (CITATIONS FROM THE NTIS DATA BASE).**
Brown, Robena J. (Ed.)
NTIS, Springfield, Va.
NTIS/PS-79/0745/4ENS, Search period covered: 1964-Jun 1979. Publ by NTIS, Springfield, Va, Jul 1979. Available from NTIS 117 p NTISDZ
This bibliography is a compilation of general research on wood preservation. Wood preservatives for use against attack by marine borers, fungus, and moisture decay are described. Wood treatment methods are also cited with some studies comparing effectiveness. This updated bibliography was prepared by searching the 1964-June 1979 data base of NTIS. It contains 117 abstracts, 6 of which are new entries to the previous edition.
DESCRIPTORS: *WOOD PRESERVATION, *Bibliographies.
CARD AEFR 811

167 **Wood Preservation (Citations from the Engineering Index Data Base)**

National Technical Information Service, Springfield, VA. (391 812)

Rept. for 1970 Jun 79
AUTHOR: Brown, Robena J.
E1754J2 Fld: 11L, 71R*, 86W GRAI7920
Jul 79 188p*
Monitor: 18
Supersedes NTIS/PS-79/0745.

Abstract: These abstracts of worldwide research contain information on wood preservation. Studies describing the different types of wood preservatives used, treatment methods, and durability of the preservatives are cited. (The bibliography contains 181 abstracts, 13 of which are entries to the previous edition.)

Descriptors: *Bibliographies, *Wood preservatives, *Protective treatments, *Wood, Preservation, Creosote, Fungus deterioration, Marine borers, Termites, Waterproofing, Durability, Impregnation, Degradation, Pest control, Plywood, Pine wood, Effectiveness, Lumber, Abstracts

Identifiers: NTISNTISI

NTIS/PS-79/0746/2ST NTIS Prices: PC NO1/MF NO1

168 **Wood Preservation (Citations from from the NTIS Data Base)**

National Technical Information Service, Springfield, VA. (391 812)

Rept. for 1964-Jun 79
AUTHOR: Brown, Robena J.
E1754J1 Fld: 11L, 71R*, 86W GRAI7920
Jul 79 125p*
Monitor: 18
Supersedes NTIS/PS-78/0662. For the companion Published Search of the Engineering Index Data Base, see NTIS/PS-79/0746.

Abstract: The bibliography is a compilation of general research on wood preservation. Wood preservatives for use against attack by marine borers, fungus, and moisture decay are described. Wood treatment methods are also cited with some studies comparing their effectiveness. (This updated bibliography contains 117 abstracts, 6 of which are new entries to the previous edition.)

Descriptors: *Bibliographies, *Wood preservatives, *Protective treatments, *Wood, Preservation, Creosote, Fungus deterioration, Marine borers, Termites, Waterproofing, Durability, Impregnation, Degradation, Pest control, Plywood, Pine wood, Effectiveness, Lumber, Abstracts

Identifiers: NTISNTISEN

NTIS/PS-79/0745/4ST NTIS Prices: PC NO1/MF NO1

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