

THE INTERNATIONAL RESEARCH GROUP ON WOOD PRESERVATION

The 33rd Annual Meeting of IRG

Part 1 Technical Programme

**IRG Secretariat
SE-100 44 Stockholm
Sweden**

Programme Section 1

Biology

Monday 13 May 16.30-18.30

WP 1.1

Physiology of decay

Convener: Dr Frederick Green III

IRG/WP 02-10443

EPR observation of Mn (II) in decayed wood
M Petrič, M Humar, P Kalan, F Pohleven, U
Schoknecht, M Šentjurc

IRG/WP 02-10450

Influence of fungal exposure on the redistribution
of copper in treated spruce wood
M Humar, F Pohleven, R J Murphy, D J
Dickinson, I Morris, M Zupancic, P Kalan, M
Petric

IRG/WP 02-10452

Effect of asphyxiation on wood decay fungi
treated with argon and nitrogen gas
C Tavzes, F Pohleven, M Janisek, R J Koestler

IRG/WP 02-10422

The copper tolerance of mycelium vs. spores for
two brown rot fungi
S Choi, J N R Ruddick, P I Morris

IRG/WP 02-10424

Characterization of glycopeptide from white-,
brown-, and soft-rot fungi
H Tanaka, S Itakura, A Enoki

IRG/WP 02-10430

A physiological role of the glyoxylate and TCA
cycles in fruitbody formation of the copper-
tolerant brown-rot fungus *Fomitopsis palustris*
J-J Yoon, T Hattori, M Shimada

IRG/WP 02-10439

Extracellular mucilage (ECM) in wood decay
basidiomycetes
D Vesentini, D J Dickinson, R J Murphy

IRG/WP 02-10449

Differences in pH, electrical resistance, cation
composition and NIR spectra of red spruce wood
during early stages of brown rot degradation.
J Jellison, S Kelley, B Goodell, D Hui, A
Ostrowsky

IRG/WP 02-10442

Characterization of wood decay enzymes by
MALDI-MS for post-translational modification
and gene identification
T H de Koker, P J Kersten

Tuesday 14 May 16.30-18.30

Joint WP 1.5/2.5

Biology of insects/Insect test methodology

Convener: Mr Jim Creffield

IRG/WP 02-10420

Subterranean termites in Portugal - Tentative
model of distribution.
T Nobre, L Nunes

IRG/WP 02-10447

Anti-feedant activity of stilbenic components
from bark of *Picea glehnii* against a
subterranean termite, *Reticulitermes speratus*
S Shibutani, M Samejima, S Doi

IRG/WP 02-10448

The influence of fungal species and the level of
decay on the mortality and feeding activity of
adult *Euophryum confine* (Broun)
M Green, A J Pitman

IRG/WP 02-20242

Susceptibility testing protocol for powderpost
beetles in Australia
B C Peters, J W Creffield, R H Eldridge

IRG/WP 02-20248

Correlation between a laboratory bioassay and
field trial conducted to determine the termiticidal
effectiveness of bifenthrin
J W Creffield, K Watson

IRG/WP 02-20245

An evaluation method for less termite attack
execution on thermal insulation for foundation
walls
K Suzuki, Y Tanaka

Wednesday 15 May 11.00-12.30

WP 1.3

Bluestain and moulds

Convener: Ms Isabelle Le Bayon

IRG/WP 02-10426

The role of mechanised harvesters in the dissemination of fungal inoculum into radiata pine logs in New Zealand

D O'Callahan, B Kreber, A Uzunovic

IRG/WP 02-10428

Biofumigation of sapstaining fungi using natural products

B Kreber, C Chittenden, R Wakeling

IRG/WP 02-10435

Susceptibility of harvested softwoods to infection by sap-staining fungi

E J Young, R A Eaton, J F Webber

IRG/WP 02-10432

Molecular phylogeny of *Ophiostoma* spp. related to blue-stain in pine

M Villarreal, F Arenal, J Sánchez-Ballesteros, M T Troya, F Llinares, V Rubio, A Navarrete

Thursday 16 May 09.00-10.30

Section 1 Biology

Main Session

Chairman: Dr Anne-Christine Ritschkoff

V chairman: Mr Robin Wakeling

IRG/WP 02-10421

Limiting conditions for decay in wood systems

P I Morris, J E Winandy

IRG/WP 02-10429

Mechanisms of Protection by NHA Against Fungal Decay

F Green III, W Henry, T P Schultz

IRG/WP 02-10436

The Role of Coformulants in Preventing Bacterial Biotransformation of IPBC.

S R Cook, D J Dickinson

IRG/WP 02-10437

The Bacterial Biotransformation of IPBC.

S R Cook, J Sullivan, D J Dickinson

IRG/WP 02-30284

Advances in understanding the mode of action of methylene bithiocyanate against

Sphaeropsis sapinea

T Singh, R Wakeling, B Kreber, A Stewart

Thursday 16 May 16.00-17.00

WP 1.4

Biology control

Convener: Dr Alan Bruce

IRG/WP 02-10425

The influence of causing primary blue-stain fungus *Ceratocystis imperfecta*

on selected properties of Scots pine wood

A Fojutowski

IRG/WP 02-10427

Use of mixed populations of microflora to control sapstain on radiata pine

C Chittenden, R Wakeling, B Kreber

IRG/WP 02-10440

Effect of Volatiles from *Trichoderma* species on the regulation of protein synthesis in *Serpula lacrymans* isolates.

S Humphris, R Wheatley, E Buultjens, A Bruce

IRG/WP 02-10423

Biological control of bluestain – log field trials in Canada

A Uzunovic, D Minchin, A Byrne

Thursday 16 May 17.00-17.30

WP 1.6

Marine

Convener: Dr Simon Cragg

IRG/WP 02-30293

Effects of two wood preservatives and one water repellent on the settlement of fouling

communities in a tropical marine environment

B Tarakanadha, K S Rao

IRG/WP 02-10441

Examining environmental conditions and the biodeterioration of historic waterlogged wood: the Kolding Cog

B A Jordan, D J Gregory, E L Schmidt

**Friday 17 May 09.00-10.30 and
11.00-11.30**

WP 1.7 Natural durability

Special session

Convener: Dr Marie-France Thévenon

IRG/WP 02-10419

Evaluation of extractives from African Padauk (*Pterocarpus soyauxii* Taub.) for protection of non decay resistant species
P Nzokou and D P Kamdem

IRG/WP 02-10431

Decay resistance of *Platanus acerifolia* wood against White Rot Fungi (*Coriolus versicolor*)
M Irmouli, O Duchelier, N Ayadi, B Charrier

IRG/WP 02-10433

Decay resistance of Scots pine (*Pinus sylvestris*) heartwood against brown rot
H Viitanen, A M Harju, P Kainulainen, M Venäläinen

IRG/WP 02-10434

Natural durability of 4 different Larix species tested in soil contact
A O Rapp, H Viitanen, T Nilsson

IRG/WP 02-10438

Natural decay resistance of some lesser-used tropical hardwoods from Ghana.
S A Amartey, F R Hanson

IRG/WP 02-10444

Ekki heartwood - is "durable"
S Doi, R Itoh, S Horisawa

IRG/WP 02-10445

Variation in natural durability of British grown Douglas fir (*Pseudotsuga menziesii* (Mirb) Franco). Part I. Effect of density and growth rate
S Akhter, M D Hale

IRG/WP 02-10446

Variation in natural durability of British grown Douglas fir (*Pseudotsuga menziesii* (Mirb) Franco). Part II. Effect of extractive contents and taxifolin
S Akhter, M D Hale

IRG/WP 02-10451

Natural durability and basic physical and mechanical properties of secondary commercially less accepted wood species from Brazil
M F Thévenon, A Thibaut

Programme Section 2

Test methodology & assessment

Tuesday 14 May 09.00-10.30

Section 2 Test methodology and assessment

Main session

Chairman: Dr Paul Morris
V chairman: Dr Ina Stephan

IRG/WP 02-20244
Field trials with mini-stakes
M Westin, A O Rapp, Y S Hadi, T Nilsson

IRG/WP 02-20240
The quantitative determination of quaternary ammonium compounds in treated timber – Results of an extended Round Robin test.
E Melcher, C Bornkessel, J Gunschera, R Hamberg, H Härtner, H-N Marx, U Schoknecht, J Wittenzellner

IRG/WP 02-20255
Test Methods for Modified Wood : The EU-Thematic Network Approach
J Van Acker, D Jones

IRG/WP 02-20247
A new technique for testing decay resistance of framing lumber
M Hedley, D Page, B Patterson

Thursday 16 May 11.00-12.30

WP 2.1

Topical issue – Non-destructive detection of damage

Convener: Ms Isabelle Le Bayon

IRG/WP 02-20243
Nondestructive Evaluation of Oriented Strand Board Exposed to Decay Fungi
B L Illman, V W Yang, R J Ross, W J Nelson

IRG/WP 02-20246
Ability of an acoustic inspection device to detect internal voids in untreated pole sections
J J Morrell, R G Rhatigan

IRG/WP 02-20253
Termatrac™: microwave technology for non-destructive detection of insect pests in timber
B C Peters, J W Creffield

Thursday 16 May 16.00-17.30

WP 2.2

Microbiological test methodology

Convener: Prof Dr Shuichi Doi

IRG/WP 02-20249
Estimation of service life of durable timber species by accelerated decay test and fungal cellar test
K Yamamoto, I Momohara

IRG/WP 02-30281
Performance trials of treated hardwood fences
L J Cookson, D K Scown, B Iskra

IRG/WP 02-20250
L-joint trials: Part 1: Observations on the process of colonisation and decay
J Carey

IRG/WP 02-20251
L-joint trials: Part 2: The relationship between colonisation by decay fungi and long-term performance
J Carey

IRG/WP 02-20254
Artificial weathering exposure as an alternative for standard ageing according to EN 84 (leaching) and EN 73 (evaporation)
J Van Acker, M Grinda, D Dickinson

IRG/WP 02-20256
Creosote losses due to ageing methods prior to laboratory efficacy testing
J Van Acker, K Ghekiere, M Stevens

IRG/WP 02-40239
Use of Transverse Compression Properties as a Measurement of Wood Biodeterioration, Part 1 of 2 - Effect of White-Rot on Yellow-Poplar
S Janzen, D Nicholas

Programme Section 3

Wood protecting chemicals

Monday 13 May 14.00-15.30

Section 3 Wood Protecting Chemicals

Main session

Chairman: Gareth Williams
V chairman: Dr Jeff Lloyd

IRG/WP 02-30289
Alternatives to CCA for ground contact protection of timber: a perspective from UK on performance and service life expectations
E D Suttie, A F Bravery, T B Dearling

IRG/WP 02-30299
Effect of crude tall oil, linseed oil and rapeseed oil on the growth of the decay fungi
L Paajanen, A-C Ritschkoff

IRG/WP 02-30292
L-Joint trials: Part 3: Relative performance of a range of preservative products
J Carey

IRG/WP 02-30277
The Use of Insect Hormones as Non-Neurotoxic Insecticides in Wood Preservatives
E Graf, M Barkhoff, R Hamberg, H Büttner, M Pallaske

Monday 13 May 16.30-17.30

WP 3.4

Preservative performance

Convener: Dr Simon Forster

IRG/WP 02-30279
Laboratory Evaluation and Field Trial of Chlorothalonil and Copper-based Preservatives and Leaching Performance of Copper in Copper Treated Wood
Mingliang Jiang, Ping Wang, Chungeng Piao, Zhaobang Li, Quan Lu, Lei Liu

IRG/WP 02-30285
Determination of the amine to copper ratio remaining in wood after water leaching
N Lucas, J N R Ruddick

IRG/WP 02-30300
Further steps in the development of above ground wood preservative systems
P Warburton, A Hughes

IRG/WP 02-30291
Tolerance of Wood Decay Fungi to Commercial Copper Based Wood Preservatives
F Pohleven, M Humar, S Amartei, J Benedik

Monday 13 May 17.30-18.30

WP 3.3

New wood protecting chemicals

Convener: Dr Marko Petric

IRG/WP 02-30286
The Protection of Wood with Oxy-aluminium Compounds
F A Ximenes, P D Evans

IRG/WP 02-30287
Amines –promising wood preservatives
M Humar, F Pohleven, S Kesnar, P Kalan

IRG/WP 02-30301
Bethoguard; A new wood protecting fungicide for use in metal free ground contact wood preservatives
S C Forster, G R Williams, M Van Der Flaas, M. Bacon, J Gors

IRG/WP 02-30282
Evaluation of tropolone as a wood preservative : activity and mode of action
P Gérardin, M Baya, N Delbarre, P N Diouf, D Perrin, P Soulounganga, E Gelhay, J P Jacquot, C Rapin

Tuesday 14 May 11.00-12.30

WP 3.2

Field trials

Convener: Dr D J Dickinson

IRG/WP 02-20241

Quality of timber impregnated with preservatives of class AB after three years in service
N Terziev

IRG/WP 02-30280

Water-Borne Copper Naphthenate: An Emerging Wood Preservative
P Nzokou, D P Kamdem, M Freeman

IRG/WP 02-30288

Observation on the performance of CCB and creosote treated fence posts after 18 years of exposure in Greece
J A Kakaras, G J Goroyias, A N Papadopoulos, M D Hale

IRG/WP 02-30297

Evaluation of wood preservatives for Nordic wood preservation class AB
M-L Edlund, J Jermer

IRG/WP 02-30294

Chemical Analysis of Southern Pine Pole Stubs Thirteen Months Following Treatment with Three Methylisothiocyanate Based Commercial Fumigants
R J Ziobro, T C Anderson, D J Herdman, J Guzzetta, T Pope

Thursday 16 May 14.00-15.30

WP 3.1

Diffusible preservatives

Convener: Dr Jeff Lloyd

IRG/WP 02-30278

Performance of borate-treated sill plates (dodai) in a protected, above-ground field test in Japan
K Tsunoda, A Adachi, T Byrne, P I Morris, J K Grace

IRG/WP 02-30283

New boron-based biocides for the protection of wood
D G Humphrey, P J Duggan, E Tyndall, J M Carr, L J Cookson

IRG/WP 02-30290

Effect of protective additives on leachability and efficacy of borate treated wood
A Mohareb, J Van Acker, M Stevens

IRG/WP 02-40234

Combustion properties of alder wood treated with some new environment friendly natural extractives. Part I. Effect of natural tannins on the combustion properties
Ü C Yildiz, A Temiz, E D Gezer, S Yildiz

IRG/WP 02-40235

Fire resistance of alder wood treated with some chemicals. Part II. Effect of other chemicals on the combustion properties
A Temiz, Ü C Yildiz

IRG/WP 02-40236

Fire retardant treated wood and plywood: A comparative study. Part III. Combustion properties of treated wood and plywood
S Colak, A Temiz, Ü C Yildiz, G Colakoglu

Programme Section 4

Processes and properties

Tuesday 14 May 14.00-15.30

Section 4. Processes and Properties

Main session

Chairman: Dr Joris Van Acker
V chairman: Dr Koichi Yamamoto

IRG/WP 02-40225
Durability of Wood/Plastic Composites Made From *Parthenium* species
P Chow, F S Nakayama, J A Youngquist, J H Muehl, A M Krzysik

IRG/WP 02-40227
Methods for improving preservative penetration into wood: a review
J J Morrell, P I Morris

IRG/WP 02-40237
The effect high temperature and long pressing time on the dimensional stability and decay resistance of OSB
G J Goroyias, M D Hale

IRG/WP 02-40241
Thermal treatment of wood: European Processes and their background
H Militz

Tuesday 14 May 16.30-18.30

WP 4.2

Substrate modification & non-biocidal treatments

Convener: Dr Holger Militz

'Thermal treatments'

IRG/WP 02-40221
Durability of Sugi (*Cryptomeria japonica* D. Don) wood treated in high temperature liquid paraffin
Y Matsuoka, W Ohmura, S Fujiwara, Y Kanagawa

IRG/WP 02-40222
Effects of heat treatment on modulus of elasticity of beech wood
S Yildiz, G Colakoglu, Ü C Yildiz, E D Gezer, A Temiz

IRG/WP 02-40223
Effects of heat treatment on water repellence and anti-swelling efficiency of beech wood
S Yildiz

IRG/WP 02-40229
Comparison of thermally modified wood originating from four industrial scale processes – durability
C R Welzbacher, A O Rapp

IRG/WP 02-40238
Heat treatment of wood strands for OSB production: Effect on the mechanical properties, water absorption and dimensional stability
G J Goroyias, M D Hale

IRG/WP 02-40242
Bending strength of heat-treated spruce and pine timber
C Bengtsson, J Jermer, F Brem

'Chemical modification'

IRG/WP 02-40224
The Effect on Biological and Moisture Resistance of Epichlorohydrin Chemically Modified Wood
R E Ibach, B-G Lee

IRG/WP 02-40231
Soft rot decay in acetylated wood. Chemical and anatomical changes in decayed wood
B Mohebby, H Militz

IRG/WP 02-40240
Update on lab and field test results for polymeric alkylphenol polysulfide treated wood
J Goswami, A Abramson, R Buff

IRG/WP 02-30295
Efficacy of linear chain carboxylic acid anhydrides as wood protection chemicals
A N Papadopoulos, M D Hale, C A S Hill

Wednesday 15 May 11.00-12.30

WP 4.3

Wood composites

Convener: Prof D Pascal Kamdem

IRG/WP 02-40219

The Protection of Plywood with Benzalkonium Chloride (BAC) Wood Preservative.
J Norton

IRG/WP 02-40228

Bending and tensile properties of vapour boron-treated composites
H M Barnes, R J Murphy, B K Via

IRG/WP 02-40230

Soil-bed decay resistance evaluation of strandboards treated with preservative at different points of the manufacture process after 18 months exposure
G J Goroyias, M D Hale

IRG/WP 02-40232

Leachability of borate-modified oriented strandboard: A comparison of zinc and calcium borate
S Lee, Q Wu

IRG/WP 02-40233

Decay Resistance and Bonding Properties of Structural Flakeboard
T F Shupe, C Y Hse

IRG/WP 02-40244

Cyclic delamination analysis of preservative-treated wood/FRP interfaces
C Tascioglu, B Goodell, R Lopez-Anido

IRG/WP 02-40226

Effects of seed origin and site on both wood density and longitudinal fluid uptake of Sitka spruce (*Picea sitchensis* (Bong.) Carr.) with height in the tree grown in the United Kingdom
I Usta, M D Hale

IRG/WP 02-30296

The influence of age on retention and fixation of CCA in pressure-treated Kenyan-grown *Eucalyptus saligna*: Summary of findings
R Venkatasamy

IRG/WP 02-40243

Butt-end incising to improve penetration and retention of CCA in *Eucalyptus saligna* telegraph poles in Kenya: Preliminary results
R Venkatasamy

IRG/WP 02-40245

Preservative absorption response of planks of *Anogeissus acuminata* for plank-built catamarans
V Kuppasamy, M V Rao, M Balaji, K S Rao

IRG/WP 02-40246

A factory applied preservative treatment for joinery
I M Robertson, W Beauford

Thursday 16 May 14.00-15.30

Joint WP 4.5/4.4

Treatability of timber/Treatment processes

Convener: Dr Koichi Yamamoto

IRG/WP 02-40220

The relationship between basic density and liquid absorption in fast, plantation grown 8 year old *Eucalyptus pellita* and *E. urophylla*
J Norton, A Muneri

Programme Section 5 Environmental aspects

Tuesday 14 May 11.00-12.00

Joint WP 5.1/5.3

Waste management/Risk assessment

Convener: Dr Gérard Deroubaix

IRG/WP 02-50182
Effect of EDTA on removal of CCA from treated
wood
S N Kartal

IRG/WP 02-50184
Semi-Solid State Bioremediation of CCA-
Treated Wood Using Malted Barley as a Nutrient
Source
C A Clausen

IRG/WP 02-50189
Balance of arsenic and recycling
L Lindroos

IRG/WP 02-50190
Electrodialytic remediation of creosote and CCA
treated timber wastes
E P Mateus, A B Ribeiro, L Ottosen

IRG/WP 02-50192
Removal of CCA from spent CCA-treated wood
L Lin, C-Y Hse

Tuesday 14 May 12.00-12.30

WP 5.4

Assessment of the impact of wood preservative use

Convener: To be announced

IRG/WP 02-50183
Impact of leachates from CCA- and copper
azole-treated pine decking on soil-dwelling
invertebrates
N Crumière, A House, M J Kennedy

Wednesday 15 May 09.00-10.30

Section 5 Environmental aspects

Main session

Chairman: Mr Antti Nurmi
V chairman: Dr Gérard Deroubaix

IRG/WP 02-50181
Fouling assemblage development on copper-
chromium-arsenic-treated timber submerged in
European waters
C Brown, R Eaton, S Cragg, P Goulletquer, A
Nicolaidou, M J Bebianno, J Icely, G Daniel, T
Nilsson, A Pitman,
G Sawyer

IRG/WP 02-50185
Ecotox Testing of Leachates as an Alternative
Approach for Environmental Impact Assessment
of Wood Preservatives
H-W Wegen

Thursday 16 May 11.00-12.30

WP 5.2

Emissions of wood preservatives to the environment

Convener: Dr Rolf-Dieter Peek

IRG/WP 02-50186
Laboratory studies of CCA-leaching: Influence of
wood and soil properties on extent of arsenic
and copper depletion
D Crawford, R Fox, P Kamden, S Lebow, D
Nicholas, D Pettry, T Schultz, L Sites, R Ziobro

IRG/WP 02-50187
Effectiveness of CCA fixation to avoid
hexavalent chromium leaching
P A Cooper, D Jeremic, Y T Ung

IRG/WP 02-50188
Investigation of CCA fixation in wood by
sequential extraction. I Determination of CCA
component fixation and preliminary extraction
results
S Radivojevic, P A Cooper

IRG/WP 02-50191

Leaching of CCA from *Bombax ceiba*

catamarans in operation for 15 years

V Kuppusamy, M Balaji, M V Rao, K

Satyanarayana Rao

IRG/WP 02-50193

Testing of a diffusion and reaction model for the
leaching of CCA components from unfixed CCA-
treated wood

L Waldron, P Cooper

IRG/WP 02-30298

The effects of pH on leaching of copper-chrome-
arsenate (CCA) from pressure-treated, Kenyan-
grown *Eucalyptus saligna* and *Acacia mearnsii*:

Initial findings

R Venkatasamy