

WOOD RESEARCH

57(1): 2012

Wood Research publishes original papers aimed at recent advances in all branches of wood science (biology, chemistry, wood physics and mechanics, mechanical and chemical processing etc.) Authors are responsible for the fact that the paper has not been published before and it is not under consideration for publication elsewhere.

EDITORS:

Štefan ŠTELLER, Slovak Forest Products Research Institute, Lamačská cesta 3, SK-841 04 Bratislava, Slovak Republic.

Marián BABJAK, Technical University in Zvolen, Masarykova 24, SK-960 53 Zvolen, Slovak Republic

ASSOCIATE EDITORS:

Eva NEUSCHLOVÁ, Slovak Forests Products Research Institute, Lamačská cesta 3, SK-841 04 Bratislava, Slovak Republic

EDITORIAL BOARD:

Mladen Stjepan FIGURIĆ, University of Zagreb, Svetosimunska 25, HR-10002 Zagreb, Croatia

Ryszard GUZENDA, Poznań University of Life Sciences, ul. Wojska Polskiego 28, PL-60-637 Poznań, Poland

Petr HORÁČEK, Mendel University in Brno, Zemedelska 3, CZ-613 00 Brno, Czech Republic

Bohus KASAL, Fraunhofer Institute for Wood Research, Wilhelm-Klauditz-Institut WKI, Bienroder Weg 54 E, D-38108 Braunschweig, Germany

Svetozár KATUŠČÁK, Slovak Technical University, Radlinského 9, SK-812 37 Bratislava, Slovak Republic

Adam KRAJEWSKI, Warsaw University of Life Sciences, Nowoursynowska 166, PL-02-787, Warsaw, Poland

Petr KUKLÍK, Czech Technical University in Prague, Thákurova 7, CZ-166 29 Praha 6, Czech Republic

Jozef KÚDELA, Technical University in Zvolen, Masarykova 24, SK-960 53 Zvolen, Slovak Republic

Holger MILITZ, University of Göttingen, Büsgenweg 4, D-37077, Göttingen, Germany

Sándor MOLNÁR, University of West Hungary, Bajcsy Zs. u. 4, H-9400 Sopron, Hungary

Peter NIEMZ, ETH Zürich, Institute for Buildings, Wood Physics, HIF E25.2 Schafmattstrasse 6, CH-8093 Zürich, Switzerland

Franc POHLEVEN, University of Ljubljana, Rožna dolina, Cesta VIII/34, SI-1001 Ljubljana, Slovenia

Josef POLÁŠEK, Tomas Bata University in Zlín, T.G.Masaryka 5555, 760 01 Zlín, Czech Republic

Alfred TEISCHINGER, Boku-University of Natural Resources and Life Sciences, Konrad Lorenzstrasse 24, 3430 Tulln, Austria

B. N. UGOLEV, Moscow State Forest University, 141 005 Mytischi, Moscow region, Russia

Aleš ZEIDLER, Czech University of Agriculture in Prague, Kamýcká 1176, CZ-165 21 Praha 6 Suchdol, Czech Republic

EDITORIAL OFFICE

Slovenský drevársky výskumný ústav/ Slovak Forest Products Research Institute

Lamačská cesta 3, SK-841 04, Bratislava, Slovak Republic

Phone: +421-2-59 418 634, Fax: +421-2-5477 2063

E-mail: woodresearch.sdvu@vupc.sk, WEB: www.woodresearch.sk

SUBSCRIPTION INFORMATION:

Wood Research is published quarterly. Subscription rate 130 EUR (including mailing expenses). Subscription order should be sent to Slovak Forest Products Research Institute, Lamačská cesta 3, SK-841 04 Bratislava, Slovak Republic

© 2012 by SDVÚ Bratislava, Slovak Republic

All rights reserved. By submitting a manuscript, the authors agree that the copyright for their article is transferred to their publisher if and when the article is accepted for publication. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform or any other reproductions of similar nature and translations. No part of this publication may be reproduced, stored in retrieval system or transmitted in any form or by any means, photocopying, electronic, recording, etc. without the prior written permission of the publisher as mentioned in Slovak Copyright Law No 383/1997.

Printed by Pulp and Paper Research Institute, Lamačská cesta 3, Bratislava, E-mail: sekretariat@vupc.sk

WOOD RESEARCH

Volume 57, Number 1, 2012

CONTENTS

1. KATRIN ZIMMER, ERIK LARNØY, OLAV HØIBØ: Assessment of fluid flow paths and distribution in conifers 1
2. ENHUA XI, GUANGJIE ZHAO: Seasonal variation in cambial anatomy and xylem cell differentiation in *Populus×euramericana* cv. '74/76 15
3. TOMASZ JELONEK, WITOLD PAZDROWSKI, ARKADIUSZ TOMCZAK, WITOLD GRZYWIŃSKI: Biomechanical stability of pines growing on former farmland in northern Poland 31
4. GABRIELA VICHROVÁ, HANUŠ VAVRCÍK, TOMÁŠ ŽID: The analysis of xylem and phloem cell number and analysis of the sapwood area proportion in norway spruce (*Picea abies* (L.) Karst.) with various state of health 45
5. JÓZSEF GARAB, ROLAND REIHSNER, JOSEF EBERHARDSTEINER: Mechanical behavior of spruce under triaxial compression 57
6. STERGIOS ADAMOPOULOS, ELIAS VOULGARIDIS: Effect of hot-water extractives on water sorption and dimensional changes of black locust wood 69
7. MIROSLAV TRČALA, PETR KOŇAS: Transformation relations and matrix implementation of multiphysics model for temperature and moisture fields in wood 79
8. CAROLINA PUENTES, MARCELA NORAMBUENA, REGIS TEIXEIRA MENDONÇA, JUAN PEDRO ELISSETCHE, JUANITA FREER: Biodegradation of *Eucalyptus globulus* and *E. nitens* by the white-rot fungus *Ceriporiopsis subvermispora* and lignin characterization by thioacidolysis and CuO oxidation 91
9. CIHAT TASCIOGLU, KUNIO TSUNODA: Retention of copper azole and alkaline copper quat in wood-based composites post - treated by vacuum impregnation 101
10. RU LIU, JINZHEN CAO, WEIYUE XU, HÖNGTAO LI: Study on the anti-leaching property of chinese fir treated with borate modified by phenol-formaldehyde resin 111
11. MÁRIA FIŠEROVÁ, JURAJ GIGAC, ALBERT RUSS, MARTA MAHOLÁNYOVÁ: Using NIR analysis for determination of hardwood kraft pulp properties 121
12. IZABELA MODZELEWSKA, MAGDALENA ZBOROWSKA, JOZEF KÚDELA, LESZEK BABIŃSKI: Changes in strength properties of wood pulp after two years of natural degradation 131
13. WAN ROSLI WAN DAUD, MÁZLAN IBRAHIM, MOHD. ÁSRO R., LAW KWEI-NAM: Interactions of oil palm fibres with wood pulps 143
14. ZDENĚK KOPECKÝ, MIROSLAV ROUSEK: Impact of dominant vibrations on noise level of dimension circular sawblades 151
15. IGOR DŽINČIĆ, DUŠAN SKAKIĆ: Determining the parameters of wood machinability as a function of tangential cutting force during the process of machining wood by routing 161
16. ERIK BARADIT, DANIEL KEUNECKE, THOMAS SCHNIDER, PETER NIEMZ: SHORT NOTE - Stiffness moduli of various extraneous species determined with ultrasound 173