



Advances in Plant Breeding & Biotechnology Techniques

Pannonian Plant Biotechnology Conference
for Ph.D Students in Plant Biology



Program

Venue

**The Faculty of Agricultural and Food Sciences University of
West Hungary, Mosonmagyaróvár**

Date

April 27-29, 2014

National Development Agency
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NEW SZÉCHENYI PLAN



PANNONIAN
PLANT BIOTECHNOLOGY ASSOCIATION

PROGRAMME

**„Advances in Plant Breeding and Biotechnology Techniques”
PANNONIAN PLANT BIOTECHNOLOGY ASSOCIATION CONFERENCE**

Venue: NYME Hungary, Biotechnology Center
H-9200 Mosonmagyaróvár, Lucsony u. 2., Hungary

Phone: +36-22-569-520, +36-22-569-527 (PPBA Martonvásár)

Web: www.annonbiotech.hu

Date: April 27–29, 2014

Programme Sunday April 27, 2014

16.00-18.00 *Arrival, registration*

18.00 *Opening by Prof. R. Schmidt Dean of the Faculty*

18.10 *Welcome Dinner*

Programme Monday April 28, 2014

Chairmen *Dr. Branka Javornik and Dr. Barnabás Jenés*

09.00 **S. Makai^{1,2}, L. Tamás¹, F. Békés³, A. Juhász²**
¹Doctoral School of Biology, Eötvös Loránd University, Budapest, Hungary
²MTA Centre for Agricultural Research, Martonvásár, Hungary
³FBFD PTY LTD - Beecroft, NSW, Australia
DOMESTICATION BOTTLENECK AND GENETIC VARIETY OF GLUTENIN GENES IN WHEAT

09.20 **A. Kovács¹, S. Tömösközi², F. Békés³, L. Láng¹, A. Juhász¹, Z. Bedő¹**
¹MTA Centre for Agricultural Research, Martonvásár, Hungary
²Budapest University of Technology and Economics- Budapest, Hungary
³FBFD PTY LTD - Beecroft, NSW, Australia
*MOLECULAR BACKGROUND OF SPELT (*T. spelta*) PROTEINS AND THEIR ALLERGEN CHARACTERISTICS*

09.40 **S. Fekecsová^{1,2}, M. Hajduch¹**
¹Institute of Plant Genetics and Biotechnology, Slovak Academy of Sciences, Nitra, Slovakia
²Faculty of Natural Sciences, Comenius University, Bratislava, Slovakia
PROTEOMIC ANALYSIS OF ALLERGENIC PROTEINS IN WHEAT

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- 10.00** M. Gombos¹, Z. Zombori², M. Szécsényi², Gy. Sándor², J. Györgyey²
¹PhD. School in Biology - University of Szeged, Hungary
²Hungarian Academy of Sciences, Biological Research Centre, Institute of Plant Biology, Szeged Hungary
THE GENES OF AN ORGAN DEVELOPMENT REGULATING TRANSCRIPTION FACTOR FAMILY IN BRACHYPODIUM DISTACHYON
- 10.20** S. Pólya¹, G. Balázs², S. Tömösközi², F. Békés³, L. Tamás¹, M. Oszvald¹
¹Department of Plant Physiology and Molecular Plant Biology, Eötvös Loránd University, Budapest, Hungary
² Department of Applied Biotechnology and Food Science, BUT University, Budapest, Hungary
³FBFD PTY LTD - Beecroft, NSW, Australia
THE EFFECTS OF WHEAT GLUTENIN SUBUNITS ON THE FUNCTIONAL PROPERTIES OF RICE DOUGH
- 10.40** *Coffee break*
- Chairmen** *Dr. Borut Bohanec and Dr. László Sági*
- 11.00** D. Polgári, L. Sági
Plant Science PhD School, Szent István University, Gödöllő, Hungary
MTA Centre for Agricultural Research, Martonvásár, Hungary
„GLOBALIZATION” IN THE SEXUAL REPRODUCTION OF CEREALS
- 11.20** M. Dóry^{1,2}, Z. Doleschall³, H. Ambrus¹, R. Dóczy¹
¹MTA Centre for Agricultural Research, Martonvásár, Hungary
²Eötvös Loránd University, PhD School of Biology, Budapest, Hungary
³National Institute of Oncology, Budapest, Hungary
IDENTIFICATION OF MITOGEN-ACTIVATED PROTEIN KINASE SUBSTRATES IN ARABIDOPSIS PROTOPLAST TRANSIENT EXPRESSION SYSTEM
- 11.40** D. Aleksza^{1,2}, H. Kovács², L. Szabados², G.V. Horváth²
¹University of Szeged, Faculty of Science and Informatics, Doctoral School of Biology, Szeged, Hungary
²HAS-Biological Research Centre, Department of Plant Biology
REGULATION OF PROTECTIVE PROLINE SYNTHESIS IN ARABIDOPSIS THALIANA
- 12.00** M. Flajšman¹, J. Jakše¹, S. Mandelc¹, S. Radišek², B. Javornik¹
¹Agronomy Department, Biotechnical Faculty, University of Ljubljana, Ljubljana, Slovenia
²Slovenian Institute of Hop Reserch and Brewing, Žalec, Slovenia
FUNCTIONAL ANALYSIS OF CANDIDATE VIRULENCE GENES OF PHYTOPATHOGEN FUNGUS VERTICILLIUM ALBO-ATRUM PREDICTED BY FUNGAL COMPARATIVE GENOMICS AND PROTEOMIC ANALYSIS
- 12.20** *Lunch*
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Chairmen *Dr. Elena Rákósy Tican and Dr. Angéla Juhász*

- 14. 00** **A. - M. Mărgineanu, I. Molnár, E. Rakósy -Tican**
Faculty of Biology and Geology, Plant Genetic Engineering Group, “Babeş-Bolyai” University, Cluj-Napoca, Romania
TRICHOMES TYPES AND THEIR DENSITY IN PARENTAL SPECIES SOLANUM TUBEROSUM AND S. CHACOENSE AND THEIR DERIVED SOMATIC HYBRIDS
- 14.20** **I. Molnár, R. Boitor, R. Thieme, T. Thieme, E. Rakósy-Tican**
Integrative Biology Doctoral School, Babeş-Bolyai University, Cluj Napoca, Romania
THE EVALUATION OF RESISTANCE TO COLORADO POTATO BEETLE AND DETECTION OF GLYCOALKALOID CONTENT BY USING FOURIER TRANSFORM INFRARED SPECTROSCOPY IN SOLANUM TUBEROSUM + SOLANUM CHACOENSE SOMATIC HYBRIDS
- 14.40** **B. Berecz¹, C. Mills², F. Láng¹, L. Tamás¹, P. Shewry³, A. Mackie⁴**
¹Department of Plant Physiology and Molecular Plant Biology, Eötvös Loránd University, Budapest, Hungary
²Manchester Interdisciplinary Biocentre, University of Manchester, UK
³Rothamsted Research, Harpenden, UK
⁴Institute of Food Research, Norwich Research Park, UK
BIOPHYSICAL CHARACTERISATION AND IN VITRO DIGESTIBILITY OF SUNFLOWER STORAGE PROTEINS
- 15.00** **D. Gábrišová^{1,2}, M. Danchenko^{3,4}, M. Hajduch¹**
¹Institute of Plant Genetics and Biotechnology, Slovak Academy of Sciences, Nitra, Slovakia
²Faculty of Biotechnology and Food Sciences, Slovak University of Agriculture, Nitra, Slovakia
³Institute of Virology, Slovak Academy of Sciences, Bratislava, Slovakia
⁴Institute of Cell Biology and Genetic Engineering, National Academy of Sciences of Ukraine, Kyiv, Ukraine
PROTEOMIC ANALYSIS OF FLAX ADAPTATION IN CHERNOBYL AREA USING GEL-FREE AND GEL-BASED APPROACH
- 15.20** **K. Košmrlj¹, J. Murovec¹, D. Kastelec¹, A. Kladnik², B. Bohanec¹**
¹Agronomy Department, Biotechnical Faculty, University of Ljubljana, Ljubljana, Slovenia
²Department of Biology, Biotechnical Faculty, University of Ljubljana, Ljubljana, Slovenia
RECENT ADVANCES IN STYRIAN OIL PUMPKIN BREEDING
- 15.40** **Coffee Break**

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- Chairmen** **Dr. Milan Certik and Dr. Tibor Janda**
- 16.00** **R. Mustata, I. Molnar, E. Rakosy-Tican**
Babes-Bolyai University, Faculty of Biology and Geology, Plant Genetic Engineering Group, Cluj Napoca, Romania
THE EVALUATION OF PROLINE, PLANT REGENERATION AND VIABILITY AFTER IN VITRO STRESS SELECTION SUSTAINS DROUGHT RESISTANCE IN POTATO MARKER-FREE TRANSGENIC LINES CARRYING PVYCP INTRON CONTAINING HAIRPIN CONSTRUCT
- 16.20** **C. Éva^{1,2}, H. Zelenyánszki¹, R. Tömösközi-Farkas³, Á. Solti¹, L. Tamás¹**
¹Department of Plant Physiology and Molecular Plant Biology, ELTE, Budapest, Hungary
²MTA Centre for Agricultural Research, Martonvásár, Hungary
³Central Environmental and Food Science Research Institute, Budapest, Hungary
TRANSGENIC PLANTS BENEFIT FROM REACTIVE ALDEHYDE DETOXYFING AND SUGAR ALCOHOL PRODUCING FUNCTION OF THE SAME ALDO-KETO REDUCTASE ENZYME DURING HEAVY METAL, FREEZING AND SALT STRESS
- 16.40** **O. K. Gondor^{1,2}, M. Pál², T. Janda², G. Szalai²**
¹Doctoral School of Biology, Eötvös Loránd University, Budapest, Hungary
²MTA Centre for Agricultural Research, Martonvásár, Hungary
EFFECT OF THE HARDENING UNDER DIFFERENT LIGHT CONDITIONS ON MAIZE CHILLING TOLERANCE
- 17.00** **V. Kovács^{1,2}, O. K. Gondor², I. Majláth², G. Szalai², T. Janda², M. Pál²**
¹Experimental Plant Biology, PhD School of Biology, Eötvös Loránd University, Budapest, Hungary
²MTA Centre for Agricultural Research, Martonvásár, Hungary
THE EFFECTS OF DROUGHT ON PLANT DEFENCE SYSTEM IN WHEAT GENOTYPES WITH DIFFERENT SALICYLIC ACID CONTENT
- 17.20** **L. Guothová, V. Matušovicová, T. Klemková, M. Čertík**
Faculty of Chemical and Food Technology, Slovak University of Technology, Bratislava, Slovak Republic
SOLID-STATE FERMENTATION – AN ALTERNATIVE METHOD FOR ENRICHMENT OF AGRO-BASED MATERIALS WITH BIOACTIVE COMPOUNDS
- 17.40** **Poster session**
- 19.00** **Dinner**

Programme	Tuesday April 29, 2014
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Chairmen *Dr. Martin Hajduch and Dr. Zoltán Molnár*

- 09.00** **B. Kalapos^{1,2}, G. Galiba^{1,2}, F. Marincs²**
¹University of Pannonia, Faculty of Information Technology, Doctoral School of Molecular- and Nanotechnologies, Veszprém, Hungary
²MTA Centre for Agricultural Research, Martonvásár, Hungary
COLD RESPONSE AND GENE EXPRESSION PATTERN CHANGES IN TWO CHROMOSOME SUBSTITUTION LINES OF WHEAT (TRITICUM AESTIVUM L.)
- 09.20** **K. Kruppa^{1,2}, É. Szakács¹, M. Molnár-Láng¹**
¹MTA Centre for Agricultural Research, Martonvásár, Hungary
²Plant Science PhD School, Szent István University, Gödöllő, Hungary
UTILIZATION OF DIPLOID WHEATGRASSES FOR ALIEN CHROMOSOME DISCRIMINATION IN WHEAT × AGROPYRON GLAEL HYBRID PROGENIES
- 09.40** **P. Mikó^{1,2}, M. Megyeri², M. Molnár-Láng²**
¹MTA Centre for Agricultural Research, Martonvásár, Hungary
²Plant Genetics and Biotechnology Programme, Plant Science PhD School, Szent István University, Gödöllő, Hungary
NOVEL UTILIZATION OF WILD RELATIVES IN BREAD WHEAT PREBREEDING
- 10.00** **E. Türkösi^{1,2}, A. Cseh¹, M. Molnár-Láng¹**
¹MTA Centre for Agricultural Research, Martonvásár, Hungary
²Szent István University, Plant Science PhD School, Plant Genetics and Biotechnology Programme, Gödöllő, Hungary
DEVELOPMENT AND IDENTIFICATION OF NEW WHEAT-BARLEY DITELOSOMIC ADDITION LINES USING FLUORESCENCE IN SITU HYBRIDIZATION AND MOLECULAR MARKERS
- 10.20** **V. Lancíková^{1,5}, J. Žiarovská², M. Danchenko^{3,4}, V. Berezhna⁴, M. Bežo², K. Ražná², N. M. Rashydov⁴, M. Hajduch^{1,3}**
¹*Institute of Plant Genetics and Biotechnology, Slovak Academy of Sciences, Nitra, Slovakia;*
²*Department of Genetics and Plant Breeding, Faculty of Agrobiolgy and Food Resources, Slovak University of Agriculture, Nitra, Slovakia;*
³*Institute of Virology, Slovak Academy of Sciences, Bratislava, Slovakia;*
⁴*Institute of Cell Biology and Genetic Engineering, National Academy of Sciences of Ukraine, Kyiv, Ukraine;*
⁵*Department of Biochemistry and Biotechnology, Faculty of Biotechnology and Food Sciences, Slovak University of Agriculture, Nitra, Slovakia*
RESTRICTION FRAGMENT LENGTH POLYMORPHISM MAPPING OF FLAX GROWN IN RADIO-CONTAMINATED CHERNOBYL ENVIRONMENT SUGGESTS THE STABILITY OF DELTA-12 DESATURASE AND FATTY ACID DESATURASE 3C GENES
- 10.40** **Coffee break**

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- Chairmen** **Dr. Vince Ördög and Dr. Ervin Balázs**
- 11.00** **R. Matusova**
Institute of Plant Genetics and Biotechnology, Slovak Academy of Sciences,
Nitra, SLOVAKIA
STRIGOLACTONES AND PARASITIC WEEDS
- 11.20** **B. S. Bhatt, A. K. Singh**
School of Life Sciences, Central University of Gujarat, Gujarat, India.
*MOLECULAR DIVERSITY AND PHYLOGEOGRAPHY OF BEGOMOVIRUSES
INFECTING VEGETABLE CROPS IN INDIA*
- 11.40** **Zs.Csömör^{1,2}, A. Almási², K. Nemes², K. Salánki², G. Csilléry³, L. Palkovics¹,
I. Tóbiás^{1,2}**
¹Corvinus University of Budapest, PhD School of Horticultural Science,
Budapest
²Plant Protection Institute, Centre for Agricultural Research, HAS, Budapest
³Budakert Kft., Budapest, Hungary
*ANALYSIS OF NSS PROTEIN OF HUNGARIAN RESISTANCE-BREAKING TOMATO
SPOTTED WILT VIRUS (TSWV) ISOLATES FROM PEPPER*
- 12.00** **P. Póthe¹, I. Gergely², V. Ördög^{1,3}**
¹“Precision Crop Production Methods” Doctoral School of Applied Plant
Sciences University of West Hungary, Faculty of Agricultural and Food
Sciences, Institute of Plant Biology, Mosonmagyaróvár, Hungary
²University of West Hungary, Faculty of Agricultural and Food Sciences,
Institute of Plant Production.
³Research Centre for Plant Growth and Development, University of KwaZulu-
Natal, Pietermaritzburg, South Africa
*EFFECT OF MICROALGAE LEAF TREATMENTS ON SUNFLOWER GROWTH AND
PRODUCTION*
- 12.20** **J. Tóth¹, V. Ördög^{1,2}**
¹Institute of Plant Biology, Faculty of Agricultural and Food Sciences,
University of West Hungary, Mosonmagyaróvár, Hungary
²Research Centre for Plant Growth and Development, University of KwaZulu-
Natal, Pietermaritzburg, South Africa
*EFFECT ON THE GROWTH, CONDITION, NUMBER OF QUALITY AND OTHER
PARAMETERS OF PEPPER KALDOM BY USING NOSTOC ENTHOPHYTUM
MICROALGAE-TREATMENT*
- 12.40** **E. Balázs**
CLOSING REMARKS
- 12.50** **Lunch**
- 14.00** **Departure**
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Posters

1. **T.-É. Dénes¹**, I. Molnár¹, K. Kruppa², É. Szakács², M. Molnár-Láng², R. Thieme³, E. Rákosy-Tican¹
¹Plant Genetic Engineering, Integrative Biology Doctoral School, Faculty of Biology and Geology, “Babes-Bolyai” University, Cluj-Napoca, Romania
²MTA Centre for Agricultural Research, Martonvásár, Hungary
³Julius Kühn-Institut (JKI), Bundesforschungsinstitut für Kulturpflanzen Quedlinburg, Germany
THE PLOIDY AND GENOME COMPOSITION OF SOLANUM TUBEROSUM AND SOLANUM BULBOCASTANUM SOMATIC HYBRIDS AND THEIR DERIVED BACKCROSS PROGENIES
2. **A. Emődi¹**, F. Gyulai¹, Z. Mravcsik^{1,7}, G. Gyulai², M. Megyeri³, S. Vinogradov⁴, T.A. Szabó⁵, I. Rovner⁶
¹Institute of Environment and Landscape Management, Szent István University, Gödöllő, Hungary
²Institute of Genetics and Biotechnology, Szent István University, Gödöllő, Hungary
MTA Centre for Agricultural Research, Martonvásár, Hungary
⁴Institute of Economics, Law and Methodology, Szent István University, Gödöllő, Hungary
⁵BioDatLab, Balatonfüred, Hungary
⁶North Caroline State University, Raleigh N.C., USA
⁷PhD School of Environmental Sciences, Szent István University, Gödöllő, Hungary
VARIAMETRIC ANALYSIS OF EINKORN (Triticum m. monococcum) SEED POPULATIONS: MEASURING GENETIC DISTANCE USING PHENOVARIAION
3. **D. Icsó^{1,2}**, G. Linc², M. Molnár-Láng²
¹Plant Science PhD School, Szent István University, Gödöllő, Hungary
²MTA Centre for Agricultural Research, Martonvásár, Hungary
PRODUCING WHEAT/BARLEY INTROGRESSION LINES USING THE 2C GAMETOCID SYSTEM
4. **D. Kullačová**, R. Matusova
Institute of Plant Genetics and Biotechnology, Slovak Academy of Sciences, Nitra, SLOVAKIA
BIOTECHNOLOGICAL APPROACH TO CONTROL PARASITIC WEEDS
5. **N. Makra^{1,2}**, G. Gell², A. Juhász², V. Soós², Z. Molnár¹, V. Ördög¹, E. Balázs¹
¹Precision Crop Production Methods Doctoral School of applied Plant Sciences, Faculty of Agricultural and Food Sciences University of West Hungary, Mosonmagyaróvár
²MTA Centre for Agricultural Research, Martonvásár, Hungary
MOLECULAR CHARACTERIZATION OF NOSTOC AND ANABAENA MICROALGAE ISOLATES

6. **Z. Mravcsik**^{1,5}, F. Gyulai¹, A. Emődi^{1,5}, G. Gyulai², S. Vinogradov³, I. Rovner⁴
¹Institute of Environment and Landscape Management, Szent István University, Gödöllő, Hungary
²Institute of Genetics and Biotechnology, Szent István University, Gödöllő, Hungary
³Institute of Economics, Law and Methodology, Szent István University, Gödöllő, Hungary
⁴North Carolina State University, Raleigh N.C., USA
⁵PhD School of Environmental Sciences, Szent István University, Gödöllő, Hungary
*GENOTYPE IDENTIFICATION OF ANCIENT VINEGRAPE (*Vitis v. vinifera*) SEED REMAINS (15th CENT. HUNGARY) BY DIGITAL MORPHOMETRY*
7. **A. Novák**^{1,2}, Á. Boldizsár², B. Tóth^{1,2}, G. Galiba²
¹University of Pannonia, Veszprém, Hungary
²MTA Centre for Agricultural Research, Martonvásár, Hungary
LIGHT QUALITY INFLUENCES THE EXPRESSION LEVEL OF SOME CBF GENES
8. **K. Pilinszky**^{1,3}, A. Bittsánszky¹, G. Gyulai², T. Kőmíves¹
¹MTA Centre for Agricultural Research, PPI Budapest, Hungary
²Department of Genetics and Plant Breeding, Szent István University, Gödöllő, Hungary
³PhD School of Plant Sciences, Szent István University, Gödöllő, Hungary
SIGNIFICANTLY INCREASED GLUTATHIONE-S-TRANSFERASE ACTIVITY IN 35S(CAMV)-ZMGSTF4 TRANSGENIC ARABIDOPSIS THALIANA