



## III International *Humulus* Symposium



### Symposium preliminary program

Sunday 9 September 2012

18:00-21:00 Day of Arrival - transport from Airport and hotels will be arranged  
Registration  
(Light refreshments, coffee, soft drinks and beer will be served)

Monday 10 September 2012

8:00-9:00 Registration  
9:00-9:30 Official Symposium opening

#### **1.Hop Breeding and Molecular Biology**

Lecture's session 1: chairman A/Prof. Anthony Koutoulis, Australia

**9:30-10:00 Dr. Simon Whittock** – invited speaker  
Hop Products Australia, Bellerive, Tasmania, Australia  
„Technology applied to the development of new flavour hop varieties in Australia”

**10:00-10:30 Dr. Ron Beatson**  
The New Zealand Institute for Plant & Food Research Limited (PFR), Palmerston North, New Zealand  
„Genetic Progress in Breeding Triploid Hops for New Zealand Growing Conditions“

10:30-11:00 Coffee break  
**11:00-11:30 Dr. John Henning** – invited speaker  
National Forage Seed Production Research Center, Department of Crop and Soil Science,  
Oregon State University, Corvallis, Oregon, USA  
„Overview of the USDA-ARS Hop Molecular Breeding Program”

**11:30-12:00 Dr. Erin Howard**  
School of Plant Science, University of Tasmania, Hobart, Australia  
„QTL analysis reveals complex genetic control underlying hop secondary metabolites in a  
New Zealand mapping population.“

**12:00-12:30 Dr. Emily Buck**  
The New Zealand Institute for Plant & Food Research Limited (PFR), Palmerston North, New Zealand  
„Dissecting the Genetic Architecture of Hops Flavour and Aroma using a New Zealand  
Mapping Population.“

12:30-13:30 Lunch  
Lecture's session 2: chairman Dr. Josef Patzak, Czech Republic

**13:30-14:15 Dr. Jaroslav Matousek** – invited speaker

Biological Centre AS CR, Institute of Plant Molecular Biology, Ceske Budejovice, Czech Republic

„Molecular background putatively involved in regulation of lupulin gland metabolome - results and prospects“

**14:15-14:45 MSc. Andrés Gatica-Arias**

Plant Breeding and Biotechnology, Institute for Plant Breeding, Seed Science and Population Genetics, University of Hohenheim, Stuttgart, Germany

„Transgenic hop (*Humulus lupulus* L.) over-expressing the homologous transcription factor HlMyb3 and consequences for gene expression in the biosynthesis of flavonoids“

**14:45-15:15 Dr. Katharina Häntzschel**

Plant Breeding and Biotechnology, Institute of Plant Breeding, Seed Science and Population Genetics, University of Hohenheim, Stuttgart, Germany

„Biosynthesis of flavonoids and phloroglucinols: Gene expression during hop flower development.“

**15:15-15:45 Dr. Gennady Karlov**

Centre for Molecular Biotechnology, Russian State Agrarian University – Moscow Timiryazev Agricultural Academy, Moscow, Russia

„Application of molecular cytogenetics for the studies of genome organisation in *Humulus lupulus* and *Humulus japonicus*.“

15:45-16:15 Coffee break

16:15-17:00 Poster session I (Sections 1+2+3)

19:00-0:00 Welcome reception

Tuesday 11 September 2012

## **2.Plant Pathology, Virology, Entomology**

Lecture's session: chairman Dr. Elisabeth Seigner, Germany

**9:00-9:30 Prof. Dr. Teruo Sano** – invited speaker

Plant Pathology Laboratory, Faculty of Agriculture and Life Sciences, Hirosaki University, Hirosaki, Japan

„History, origin, and diversity of hop stunt and hop stunt viroid“

**9:30-10:00 Dr. Sebastjan Radišek**

Slovenian Institute for Hop Research and Brewing, Žalec, Slovenia

„Outbreaks and management of hop stunt disease in Slovenia“

**10:00-10:30 Dr. Jernej Jakše**

University of Ljubljana, Biotechnical Faculty, Agronomy Department, Ljubljana, Slovenia

„Next Generation Sequencing as a diagnostic tool for new pathogen discovery in hops“

10:30-11:00 Coffee break

**11:00-11:30 Dr. Stanislav Mandelc**

University of Ljubljana, Biotechnical Faculty, Ljubljana, Slovenia

„Colonization of susceptible and resistant hop plants by *Verticillium albo-atrum* and comparative proteomics of roots and xylem fluid“

**11:30-12:00 Dr. Florian Weihrauch**

Bavarian State Research Center for Agriculture, Institute for Crop Production and Plant Breeding, Hop Research Center, Hüll, Germany

„Simple is Beautiful: A New Biotest for the Aphid Tolerance Assessment of Different Hop Genotypes“

**12:00-12:30 Dr. Josef Vostřel**

Hop Research Institute, Co. Ltd., Zatec, Czech Republic  
„Protection of organic Saaz hops against two-spotted spider mite (*Tetranychus urticae* Koch) with the help of released predatory mites *Typhlodromus pyri* Scheuten“  
12:30-13:30 Lunch

### 3. Chemistry and Plant Physiology

Lecture's session: chairman Dr. Karel Krofta, Czech Republic

**13:30-14:00 Dr. Martin Biendl** – invited speaker

Hopsteiner HHV, Mainburg, Germany

„Isolation of prenylflavonoids from hops“

**14:30-15:00 Dr. Clinton Dahlberg**

KinDex Therapeutics, LLC, Seattle, Washington, USA

„Preparation of the Unnatural Derivatives of *Humulus Lupulus* L. (Hops)“

**15:00-15:30 A/Prof. Robert Shellie**

Australian Centre for Research on Separation Science (ACROSS), University of Tasmania, Hobart, Australia

„Varietal characterisation of hop (*Humulus lupulus* L.) using GC-MS analysis“

15:30-16:00 Coffee break

**16:00-16:45 Dr. Ana M. Fortes** – invited speaker

Plant Molecular Biology & Biotechnology Unit, ICAT, FCUL, University of Lisbon, Lisbon, Portugal

„Organogenic Nodule Formation in Hop: A Tool to Study Morphogenesis in Plants with Biotechnological and Medicinal Applications“

**16:45-17:15 Dr. Josef Patzak**

Hop Research Institute, Zatec, Czech Republic

„Endogenous phytohormone levels in dwarf and normal hop (*Humulus lupulus* L.) plants“

**17:15-17:45 Dr. Vít Gloser**

Masaryk University, Faculty of Science, Department of Experimental Biology, Brno, Czech Republic

„The response of *Humulus lupulus* to drought: contribution of structural and functional plant traits“

Poster session I (Sections 1+2+3)

18:00-19:00 Light refreshments

19:00-20:00 Children chorus in church

Wednesday 12 September 2012

### 4. Hop Cultivation and Management

Lecture's session: Dr. John Henning, USA

**9:00-10:00 Dr. Hiroo Matsui** – invited speaker

Beer Development Department, Research Center, Suntory Liquors Limited, Osaka, Japan

„The Influence of Hop Root Age on the Quality of Hop“

**10:00-10:30 Dr. Karel Krofta**

Hop Research Institute, Zatec, Czech Republic

“Transpiration – an important contribution to overall water balance in hop plantation.”

10:30-11:00 Coffee break

**11:00-11:30 Dr. Barbara Reed** – invited speaker

USDA-Agricultural Research Service, National Clonal Germplasm Repository, Corvallis, Oregon, USA

„Cryopreservation and maintenance of hop material in USDA germplasm collection”

**11:30-12:00 Dr. Stefano Buiatti, Dr. Luca Pretti**

Department of Food Science, University of Udine, Italy

„Hop cultivation trials in some Italian regions: alfa- and beta-acid content of hop

**12:00-12:30 Ing. Josef Ježek**

Hop Research Institute, Zatec, Czech Republic

„Trial growing low trellis hops in Czech Republic in 2009-2011“

**12:30-13:00 Dr. Ruslan Hofmann**

VLB Berlin, TU Berlin and WOLF Anlagentechnik GmbH & Co. KG, Berlin, Germany

„Energy consumption and quality control during hop kilning - latest results of an ongoing research project“

13:00-14:00 Lunch

14:00-15:00 Poster session II (Sections 4+5+6)

15:00-19:00 Excursion - Hop Research Institute, harvest and post-harvest facilities, hop museum, hop and beer temple

Thursday 13 September 2012

### **5.Hop, Indispensable Raw Material for Brewing**

Lecture session – chairman Doc. Pavel Dostálek, Czech Republic

**9:00-9:30 Dr. Jessika De Clippeleer** – invited speaker

KaHo St.-Lieven, Association KULeuven, Laboratory of Enzyme, Fermentation, and Brewing Technology, Ghent, Belgium

„The origin of staling aldehydes: hop versus malt“

**9:30-10:00 Dr. Thomas Shellhammer**

Department of Food Science and Technology, Oregon State University, Corvallis, Oregon, USA

„Towards understanding the origin of American hop aroma in beer“

**10:00-10:30 Dr. Sara Jaeger**

The New Zealand Institute for Plant and Food Research Limited, Auckland, New Zealand

„A sensory method developed for screening of dried hop cones for specific aroma traits“

10:30-11:00 Coffee break

**11:00-11:30 Dr. Patricia Aron**

MillerCoors Brewing, Milwaukee, Wisconsin, USA

„Elucidation and evaluation of hop polyphenol influence on lager beer flavor and flavor stability“

**11:30-12:00 Dr. Clinton Dahlberg**

KinDex Therapeutics, LLC, Seattle, Washington, USA

„Beer’s Bitter Structural Chirality (Solved)“

12:00-13:30 Lunch

### **6.Hop, Beer and Health**

Lectures / Poster session

**13:30-14:00 Prof. Herbert Riepl**

Organic and Analytical Chemistry, Weihenstephan-Triesdorf University of Applied Sciences, Straubing, Germany

„Screening of a commercial hop extract for substances active in neural stem cell differentiation“

**14:00-14:30 Doc. Pavel Dostálek**

Department of Biotechnology, Institute of Chemical Technology, Prague, Czech Republic

„Effect of xanthohumol on brewing yeast cells“  
14:30-15:00 Official Symposium closing  
15:00-15:30 Coffee break  
15:30-16:00 Poster session II (Sections 4+5+6)  
  
18:00-0:00 Farewell party

Friday 14 September 2012

Day of Departure or Post-Conference Tour

Post-Conference-tour (additional costs of 290,-€) will be organized to visit the most beautiful and interest places of the Czech Republic: Prague, Karlovy Vary (Carlsbad), Karlštejn castle, Pilsen Urquell brewery and beer museum.

### **Preliminary program**

Friday - 14th September

8:00 - departure from Zatec to Pilsen  
9:30 - 11:10 guided tour of brewery Pilsner Urquell  
11:10 -12:00 - Pilsner Urquell brewery museum  
12:00 - 13:00 lunch in restaurant Na Spilce  
13:00 - departure to Karlovy Vary  
14:30 - 18:00 guided tour of Karlovy Vary  
18:45 - 19:45 dinner in microbrewery Chýše  
20:30 - arrival to Žatec

Saturday - 15th September

8:00 - departure from Zatec to Prague  
9:30 - 13:00 sightseeing guided tour of Prague  
13:00 - 14:00 lunch  
14:00 - 15:00 transfer to Karlštejn castle  
16:35 - 18:35 guided castle tour  
departure to Zatec, dinner 20:00 - 21:00

Poster session I:

### **1.Hop Breeding and Molecular Biology**

#### **Dr. Elisabeth Seigner**

Bavarian State Research Center for Agriculture, Institute for Crop Science and Plant Breeding, Hop Breeding Research, Freising, Germany  
„Technique for Functional Analysis of Genes Associated with Powdery Mildew Resistance in Hops“

#### **Dr. Nikola Yakovin**

Centre for Molecular Biotechnology, Russian State Agrarian University – Moscow  
Timiryazev Agricultural Academy, Moscow, Russia

„The use of laser microdissection for the construction of *Humulus japonicus* sex chromosome specific DNA library and cytogenetic analysis“

**Dr. Jakub Vašek**

Czech University of Life Sciences Prague, Czech Republic

„Comparative analysis of wild hop based on genetic, chemical and morphological data“

**Dr. Jaroslav Matousek**

Biological Centre AS CR, Institute of Plant Molecular Biology, Ceske Budejovice, Czech Republic

„Complex regulation of omt1 gene, implication of hop transcription factor HIWRKY1“

**Dr. Tomáš Kocábek**

Biological Centre AS CR, Institute of Plant Molecular Biology, Ceske Budejovice, Czech Republic

„Functional and complementation analysis of hop genes in heterologous systems“

**Dr. Jernej Jakše**

University of Ljubljana, Biotechnical Faculty, Agronomy Department, Jamnikarjeva 101, Ljubljana SI-1000, Slovenia

„Hop ESTs As A Source Of Resistance Gene Analogs And Their Application In Genetic Mapping“

„Elucidating Verticillium wilt resistance in hop“

„Molecular genotyping of worldwide hop cultivars based on microsatellite loci“

„Novel hop male markers from DArT sequences“

## **2.Plant Pathology, Virology, Entomology**

**Dr. Jernej Jakše**

University of Ljubljana, Biotechnical Faculty, Agronomy Department, Ljubljana, Slovenia

„Differential gene expression during interaction of resistant and susceptible hop cultivars with *Verticillium albo-atrum*“

**Dr. Sebastjan Radišek**

Slovenian Institute for Hop Research and Brewing, Žalec, Slovenia

„Evaluation of candidate reference genes for gene expression normalization in hop using real time quantitative RT-PCR“

**Dr. Stanislav Mandelc**

University of Ljubljana, Biotechnical Faculty, Ljubljana, Slovenia

„Comparative secretome analysis of *Verticillium albo-atrum* isolates from hop“

**Dr. Josef Vostřel**

Hop Research Institute, Co. Ltd., Zatec, Czech Republic

„Negative effect of fungicides used in practical hop protection against downy mildew (*Pseudoperonospora humuli*) on aphidophagous coccinellids *Propylea quatuordecimpunctata* L.“

**Zoltán Füßy**

Biological Centre AS CR, Institute of Plant Molecular Biology, Ceske Budejovice, Czech Republic

„HSVd pathogenesis involves a disbalance of hop regulatory genes“

**Dr. Jaroslav Matousek**

Biological Centre AS CR, Institute of Plant Molecular Biology, Ceske Budejovice, Czech Republic

„Biolistic transfer of Slovenian viroid disease syndrome to Czech hop Oswald's72-symptoms and identification of dominant sequence upon transfer of HSVd component “

### **3. Chemistry and Plant Physiology**

**Christiana Sarraf**

Horticulture Research Center, Faculty of Agriculture and Food Sciences, Laval University, Québec, Canada

„Agronomic and nutraceutical potential of hops (*Humulus lupulus* L.) grown in Quebec“

**Prof. Josef Pulkrábek**

University of Life Sciences in Prague, FAFNR, Department of the Plant Production, Prague, Czech Republic

„Contribution to etiology of occurrence of monoecious hop plants“

**Dr. Jaroslav Pokorný**

Hop Research Institute, Zatec, Czech Republic

„Changes in the rate of photosynthesis, transpiration and plant pigments content (chlorophyllometric units) during the vegetation of hop“

Poster session II:

### **4. Hop Cultivation and Management**

**Prof. Josef Pulkrábek**

University of Life Sciences in Prague, FAFNR, Department of the Plant Production, Prague, Czech Republic

„The main physiological disorders of roots covered seedling in hop“

**Doc. Adolf Rybka**

CULS Prague, Faculty of Engineering, Department of Agricultural Machines, Czech Republic

„Analysis of activity of inclined belt conveyors with different belt structure when separating impurities from hops“

**Samuel Turner**

Department of Crop and Soil Science, Washington State University, Pullman, WA, USA

„Cover Cropping Systems for Organic Hop Production in the Yakima Valley, USA“

**Ing. Josef Ježek**

Hop Research Institute, Zatec, Czech Republic

„Organic hop growing in Czech Republic“

**Dr. Petr Svoboda**

Hop Research Institute, Zatec, Czech Republic

„Production and propagation of virus free hops in the Czech Republic“

### **5. Hop, Indispensable Raw Material for Brewing**

**Dr. Barbara Jaskula-Goiris**

Laboratory for Enzyme, Fermentation, and Brewing Technology (EFBT), KAHO Sint-Lieven Technology, Gent, Belgium

„The use of hop-derived polyphenolic extracts to improve beer flavour and flavour stability“

**Dr. Karel Krofta**

Hop Research Institute, Zatec, Czech Republic

„Stability of hop beta acids and their decomposition products during natural ageing“

### **6. Hop, Beer and Health**