

18 – 21 September 2018
Frankfurt am Main · Germany

Bioflavour 2018

Biotechnology of Flavours, Fragrances and Functional Ingredients

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SCIENTIFIC COMMITTEE

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Anthony Borneman	The Australian Wine Research Institute, Adelaide/AUS
Markus Herderich	The Australian Wine Research Institute, Adelaide/AUS
Nic D. Lindley	A*Star / Biotransformation Innovation Platform/SGP
John Morrissey	University College Cork/IRE
Jens Schrader	DECHEMA-Forschungsinstitut, Frankfurt/D (Chair)
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Tuesday, 18 September 2018

13:00	Registration
15:45	WELCOME ADDRESS J. Schrader, DECHEMA Research Institute, Frankfurt/D
	Session: Flavour perception and biotechnology
	<i>Chair: R.G. Berger, University of Hanover/D</i>
16:00	KEYNOTE LECTURE 1 Gut/nose-brain communications V. Schöpf ¹ ; ¹ University of Graz/A
16:40	Genomics of flavour pathways in <i>Kluyveromyces marxianus</i> F. Titrarelli ¹ ; N. Montini ¹ ; K. Kilkawley ² ; G. Suzzi ³ ; R. Tofalo ³ ; J. Morrissey ¹ ; ¹ University College Cork/IRL; ² Teagasc Moorepark, Fermoy/IRL; ³ University of Teramo/I
17:00	Impact of aroma precursors and strains selection on the aroma quality of the white truffle <i>Tuber borchii</i> M. Vahdatzadeh ¹ ; R. Splivallo ¹ ; ¹ Goethe University Frankfurt/D
17:20	Impact of lactic acid fermentation with <i>Lactobacillus plantarum</i> on selected flavour-related compounds in black chokeberry (<i>Aronia melanocarpa</i>) NFC juice N. Markkinen ¹ ; O. Laaksonen ¹ ; B. Yang ¹ ; ¹ University of Turku/FIN
17:40	Coffee break
18:10	INVITED LECTURE 1 Industrial biotechnology for F&F ingredients production: current and future challenges A. Taglieber ¹ ; ¹ Firmenich SA, Geneva/CH
18:40	INVITED LECTURE 2 Satisfying cats and dogs appetite, the science behind pet food palatability enhancers M. Guilloux ¹ ; L. Callejon ¹ ; A. de Ratuld ¹ ; I. Guiller ¹ ; ¹ Diana Pet Food, Elven/F
19:10	WELCOME RECEPTION / GET TOGETHER WITH MUSIC
21:30	End of day 1

LECTURE PROGRAMME

Wednesday, 19 September 2018

08:30 Registration

Session: Microbial cell factories I

Chair: J. Morrissey, University College Cork/IRE

09:00 KEYNOTE LECTURE 2

Synthetic biology and the industrialization of white biotechnology

C. Paddon¹; Amyris, Inc., Emeryville, CA/USA

09:40 Engineering plant diterpenoid pathways in yeast: increasing yield and expanding product diversity

A. Tissier¹; U. Bathe¹; S. Lohse¹; S. Marillonnet¹; ¹ Leibniz-Institut für Pflanzenbiochemie, Halle (Saale)/D10:00 Pentacyclic triterpenoid production with engineered *Saccharomyces cerevisiae*B. Ebert¹; E. Czarnotta¹; K. Walter¹; C. Knuf²; J. Maury²; S. Jacobsen²; H. Guo¹; A. Lewandowski³; T. Polakowski³; J. Förster²; C. Lang³; L. Blank¹; ¹ iAMB – Institute of Applied Microbiology, RWTH Aachen University, Aachen/D; ² Novo Nordisk Foundation Center for Biosustainability, DTU Denmark, Lyngby/DK; ³ Organobalance GmbH, Berlin/D10:20 Whole-cell (+)-ambrein production in *Pichia pastoris*S. Moser¹; G. Strohmeier¹; E. Leitner²; H. Pichler³; ¹ Austrian Centre of Industrial Biotechnology, Graz/A; ² Institute of Analytical Chemistry and Food Chemistry, Graz University of Technology/A; ³ Institute of Molecular Biotechnology, Graz University of Technology/A

10:40 Coffee break and poster viewing

Session: Microbial cell factories II

Chair: C. von Wallbrunn, Hochschule Geisenheim University/D

11:20 KEYNOTE LECTURE 3

Engineering the production of flavonoids and polyphenols in recombinant microorganisms

M. Koffas¹; ¹ Rensselaer Polytechnic Institute, Center for Biotechnology and Interdisciplinary Studies, Troy, NY/USA

12:00 Towards de novo production of prenylated flavonoids in microorganisms

M. Levisson¹; M. van der Heide¹; J. Daran²; C. Araya Cloutier¹; J. Vincken¹; J. Beekwilder³; ¹ Wageningen University/NL; ² Technical University of Delft/NL; ³ Wageningen Plant Research/NL12:20 Pathway and enzyme engineering, compartmentalization and enzyme fusions for de novo production of mandelic and 4-hydroxymandelic acid in *Saccharomyces cerevisiae*M. Reifenrath¹; J. Tripp¹; M. Bauer¹; M. Oreb¹; E. Boles¹; ¹ Goethe University Frankfurt/D12:40 Fermentative production of flavour and fragrance isoprenoids in *Rhodobacter*E. Melillo¹; F. Fluitman¹; W. Wisselink¹; R. Trokowski¹; N. Willems¹; G. Lentzen¹; ¹ Isobionics BV, Geleen/NL

13:00 Lunch break

LECTURE PROGRAMME

Wednesday, 19 September 2018

Session: Novel pathways, enzymes and biocatalysts I

Chair: M. Buchhaupt, DECHEMA Research Institute, Frankfurt/D

14:30 Metagenomics yields new insights about metabolic flux through the non-mevalonate pathway

S. Ayakar¹; V. Yadav¹; ¹ The University of British Columbia, Vancouver/CDN

14:50 Breaking the isoprene rule: biosynthesis of unconventional terpenes

L. Drummond¹; M. Kschowak¹; J. Schrader¹; M. Buchhaupt¹; ¹ DECHEMA-Forschungsinstitut, Frankfurt/D

15:10 Myxobacterial enzymes for the synthesis of new sesquiterpenes

S. Schiffrin¹; S. Schulz²; F. Flachsmann³; R. Bernhardt¹; ¹ Universität des Saarlandes, Saarbrücken/D; ² Technische Universität Braunschweig/D; ³ Givaudan Schweiz AG, Dübendorf/CH

15:30 Development of a modular whole cell glycosylation platform for small molecules

C. Ruprecht¹; F. Bönisch¹; W. Streit¹; U. Rabausch¹; ¹ Universität Hamburg/D

15:50 A greener route to aldehydes: enzymatic carboxylate reduction

M. Winkler¹; ¹ acib GmbH and Graz University of Technology/A

16:10 Coffee break and poster viewing

Session: Novel pathways, enzymes and biocatalysts II

Chair: N. Lindley, A*Star / Biotransformation Innovation Platform/SGP

16:50 A biosynthetic approach to flavours

B. Hauer¹; ¹ Universität Stuttgart/D

17:10 Synthesis of fragrance aldehydes by the combination of chemo- and biocatalysis in microbial cell factories

F. Rudroff¹; A. Ressmann¹; D. Schwendenwein²; S. Leonhartsberger¹; M. Doerr³; M. Mihovilovic¹; U. Bornscheuer³; M. Winkler²; ¹ TU Wien/A; ² ACIB GmbH, Graz/A; ³ University of Greifswald/D

17:30 Industrial synthesis of functional ingredients by enzyme cascade reactions

A. Vogel¹; ¹ c-LEcta GmbH, Leipzig/D

Session: Technological and regulatory aspects of flavour and fragrance biotechnology

Chair: H. Zorn, University of Giessen/D

17:50 INVITED LECTURE 3

Achieving positive economies of scale in organism engineering

K. Madden¹; ¹ Ginkgo Bioworks, Boston, MA/USA

18:20 INVITED LECTURE 4

Sense the possibilities in the world of Regulatory

E. Moraes¹; ¹ Givaudan International SA, Kempththal/CH

18:50 POSTER PARTY – sponsored by Hessen Trade & Invest GmbH, Wiesbaden/D

22:00 End of day 2

LECTURE PROGRAMME

Thursday, 20 September 2018

Session: Advanced analytics and novel compounds

Chair: M. Wuest, University of Bonn/D

- 09:00 **KEYNOTE LECTURE 4**
Strategies for the discovery of novel aroma-active key compounds in foods
M. Steinhaus¹; ¹ Leibniz Institute for Food Systems Biology at the Technical University of Munich, Freising/D
- 09:40 **Prediction and validation of functions of terpene synthases in *Agrocybe aegerita* and higher fungi**
C. Zhang¹; X. Chen¹; A. Orban²; S. Devi¹; H. Too³; M. Rühl²; ¹ Biotransformation Innovation Platform; Agency for Science, Technology and Research, Singapore/SGP; ² Institute of Food Chemistry and Food Biotechnology, Justus Liebig University Giessen/D; ³ Department of Biochemistry, Yong Loo Lin School of Medicine, National University of Singapore/SGP
- 10:00 **De novo synthesis of stereoisomers of dill ether and wine lactone by *Pleurotus sapidus* in submerged cultivation**
T. Trapp¹; M. Fraatz¹; H. Zorn¹; ¹ Justus Liebig University Giessen/D
- 10:20 **New approaches in peptidome analysis to characterize taste-active peptides in fermented foods**
K. Sebald¹; A. Dunkel¹; T. Hofmann¹; ¹ Technische Universität München, Freising/D
- 10:40 Coffee break and poster viewing

Session: Microbial cell factories III

Chair: W. Schwab, TU München/D

- 11:20 **Multidimensional heuristic process for carotenoids and apocarotenoids biosynthesis**
X. Chen¹; C. Zhang¹; N. Lindley¹; H. Too²; ¹ Biotransformation Innovation Platform, A*STAR, Singapore/SGP; ² National University of Singapore/SGP
- 11:40 **Sustainable production of beta-ionone in metabolically engineered *Saccharomyces cerevisiae* strains**
E. Agosin¹; J. Lopez¹; F. Saitua¹; V. Cataldo¹; N. Werner¹; P. Saa¹; A. Cintolesi²; A. Maass²; ¹ Pontificia Universidad Católica de Chile, Santiago/RCH; ² Universidad de Chile, Santiago/RCH
- 12:00 **Yield optimized fermentative production of pure (R)- α -ionone**
P. Welters¹; ¹ Phytowelt Greentechnologies GmbH, Nettetal/D
- 12:20 **INVITED LECTURE 5**
Strain and process development for fermentative production of steviol glycosides
V. Boer¹; ¹ DSM Biotechnology Center, Delft/NL
- 12:50 Lunch break

LECTURE PROGRAMME

Thursday, 20 September 2018

Session: Plant biosynthesis and plant enzymes

Chair: J. Beekwilder, Plant Research International, Wageningen/NL

- 14:00 **KEYNOTE LECTURE 5**
A novel anti-diabetic compound from *Crocoshia*: MontbretinA biosynthesis
S. Irmisch¹; J. Jo¹; C. Roach¹; S.G. Withers¹; J. Bohlmann¹; ¹ University of British Columbia, Vancouver/CDN
- 14:40 **Enhancing structural diversity in terpenoid biosynthesis through multiproduct terpene synthases**
A. Vattekkatte¹; S. Garms¹; F. Ecker²; M. Groll²; W. Boland¹; ¹ MPI for Chemical Ecology, Jena/D; ² TU München/D
- 15:00 **Characterization of a recombinant SUMO-fused zizaene synthase from *Chrysopogon zizanioides*, a novel terpene cyclase for the production of a variety of monoterpenes and sesquiterpenes**
F. Aguilar¹; S. Hartwig¹; T. Scheper¹; S. Beutel¹; ¹ Leibniz Universität Hannover/D
- 15:20 **Lipid Droplet: A one-stop shop for fragrance biosynthesis**
H. Bae¹; ¹ Mosspiration Biotech, Kongens Lyngby/DK
- 15:40 Coffee break and poster viewing

Session: Modern biotechnology in the world of wine

Chair: M. Herderich, The Australian Wine Research Institute, Urrbrae/AUS

- 16:20 **KEYNOTE LECTURE 6**
Synthetic biology, Yeast2.0 and their potential to impact the winemaker's art
D. Kutyna¹; I. Pretorius²; A. Borneman¹; ¹ The Australian Wine Research Institute, Adelaide/AUS; ² The Chancellery, Macquarie University, Sydney/AUS
- 17:00 **Impact of Non-*Saccharomyces* yeasts on the composition of aroma compounds and quality of white wines**
S. Benito¹; I. Belda²; J. Ruiz²; B. Beisert³; T. Hofmann³; S. Fritsch³; E. Navascués¹; D. Marquina²; F. Calderón¹; A. Santos²; D. Rauhut³; ¹ Dept. of Food Technology, Escuela Técnica Superior de Ingenieros Agrónomos, Polytechnic University of Madrid/E; ² Dept. of Microbiology, Biology Faculty, Complutense University of Madrid/E; ³ Dept. of Microbiology and Biochemistry, Hochschule Geisenheim University/D
- 17:20 **Molecular basis of smoke taint in wine**
K. Härtl¹; W. Schwab¹; ¹ Biotechnology of Natural Products, Technical University of Munich, Freising/D
- 17:40 **Poster award ceremony**
- 17:50 **End of day 3 lecture programme**
- 18:20 **Bus transfer to Oberschweinstiege for conference dinner**
- 19:00 **CONFERENCE DINNER**
- 23:00 **Bus transfer retour / End of day 3**

Friday, 21 September 2018

Session: Receptors, flavours, bioactives

Chair: A. Borneman, The Australian Wine Research Institute, Urrbrae/AUS

- 09:00 **KEYNOTE LECTURE 7**
From flavours to bioactives – chemoreceptors you always meet twice
D. Krautwurst¹; ¹ Leibniz Institute for Food Systems Biology at the Technical University of Munich, Freising/D
- 09:40 **Taste modulation for healthier nutrition: discovery of functional natural products improving the taste of calorie or salt reduced food**
C. Gras¹; K. Riedel¹; K. Siems²; D. Sombroek¹; M. Krohn¹; ¹ BRAIN AG, Zwingenberg/D; ² AnalytiCon Discovery GmbH, Potsdam/D
- 10:00 **Bioflavours – ligands, receptors, selectivity and promiscuity**
M. Niv¹; A. Di Pizio¹; Y. Ben Shoshan-Galeczki¹; A. Dagan-Wiener¹; I. Nissim¹; ¹ The Hebrew University, Rehovot/IL
- 10:20 **New routes to sweet taste from nature based on multicascaded biocatalytic synthesis**
L. Wessjohann¹; M. Dippe¹; S. Herrmann¹; A. Bauer¹; J. Ley²; T. Geißler³; ¹ Leibniz Institute of Plant Biochemistry, Halle (Saale)/D; ² Symrise AG, Holzminden/D
- 10:40 **Coffee break and poster viewing**
- Session: Bioprocess development and downstream processing**
- Chair: J. Schrader, DECHEMA Research Institute, Frankfurt/D
- 11:20 **Fungal fermentation induced improvement of woody aroma – insights from Assam (Indian) agarwood aromatics**
N. Mahajan¹; N. Kalita¹; R. Das²; P. Naziz²; S. Sen²; ¹ Lab#B2, Biotech Ignition Grant Scheme, Guwahati Biotech Park, Indian Institute of Technology Campus, Guwahati, Assam, India, Guwahati/IND; ² Assam Don Bosco University, Sonapur/IND
- 11:40 **Rational selection of biphasic reaction systems for microbial flavor and fragrance production**
X. Priebe¹; M. Daschner¹; W. Schwab²; A. Daugulis³; D. Weuster-Botz¹; ¹ Technical University of Munich, Institute of Biochemical Engineering, Garching/D; ² Technical University of Munich, Biotechnology of Natural Products, Weihenstephan/D; ³ Queen's University, Kingston/CDN
- 12:00 **The use of a rotating packed bed for the aroma recovery**
I. Lukin¹; G. Schembecker¹; ¹ TU Dortmund/D
- 12:20 **Closing remarks**
- 12:40 **End of conference / Lunch packages to take away**

- P01 **Membrane-assisted process intensification for production of (sugar)esters and xylo-oligosaccharides**
W. Dejonghe¹; Y. Satyawali²; K. Rios Rios²; W. Van Hecke²; R. Plantier-Royon³; C. Rémond³; ¹ VITO NV, Mol/B; ² Flemish Institute for Technological Research (VITO), Mol/B; ³ Université de Reims Champagne-Ardenne (URCA), Reims/F
- P02 **Unequal enantiomeric ratios of 2-methylbutanoic acid and its methyl ester: elucidation of novel biogenetic pathways of (R)-methyl 2-methylbutanoate in a fermented beverage**
Y. Zhang¹; M. Fraatz²; H. Zorn²; ¹ University of Hohenheim, Stuttgart/D; ² Justus-Liebig University Giessen/D
- P03 **Enzymatic release of flavour compounds from an old domestic rose apple variety (*Malus domestica* 'Ilzer Rose')**
M. Bloder¹; I. Tauber¹; G. Innerhofer²; B. Siegmund¹; ¹ Graz University of Technology, Graz/A; ² School for Fruit Growing & Viticulture Silberberg, Leibnitz/A
- P04 **Tailoring the metabolism of *Corynebacterium glutamicum* towards efficient production of plant polyphenols**
L. Milke¹; N. Kallscheuer¹; J. Marienhagen¹; ¹ Forschungszentrum Jülich GmbH/D
- P05 **Kinetic modeling of the synthesis of β -ionone by recombinant *Saccharomyces cerevisiae***
A. Cintolesi¹; F. Saitua²; J. Lopez²; K. Leiva²; P. Saa²; V. Acuña¹; A. Maass¹; E. Agosin²; ¹ Universidad de Chile, Santiago/RCH; ² Pontificia Universidad Católica de Chile, Santiago/RCH
- P06 **Production of N-methylglutamate by recombinant *Pseudomonas putida***
T. Walter¹; M. Mindt¹; V. Wendisch¹; ¹ Bielefeld University, Bielefeld/D
- P07 **Quantitative conversion of (+)-valencene to natural (+)-nootkatone by combining a dye-decolorizing peroxidase and a laccase from *Funalia trogii***
R. Berger¹; J. Kolwek¹; C. Behrens¹; U. Krings¹; D. Linke¹; ¹ Leibniz Universität Hannover, Institut für Lebensmittelchemie/D
- P08 **Cold enzymatic generation of smoke flavour from side-streams of the food industries**
R. Berger¹; T. Detering²; A. Nieter²; ¹ Leibniz Universität Hannover/D; ² Leibniz Universität Hannover, Institut für Lebensmittelchemie/D
- P09 **Increased trans-glycosylation activity of hexosaminidases for synthesis of human milk oligosaccharides**
J. Muschiol¹; J. Holck¹; B. Zeuner¹; P. Kamp Busk¹; L. Lange¹; J. Dalgaard Mikkelsen¹; A. Meyer¹; S. Binti Jamek²; ¹ Technical University of Denmark, Kongens Lyngby/DK; ² University Malaysia Pahang, Pekan/MAL
- P10 **New leads on microbial fermentation of Indian citrus with potential for novel/ altered fragrance of various essential oils**
R. Das¹; P. Naziz¹; N. Kalita²; N. Mahajan²; S. Sen¹; ¹ Assam Don Bosco University, Sonapur/IND; ² Lab#B2, Biotech Ignition Grant Scheme, Guwahati Biotech Park, Indian Institute of Technology Campus, Guwahati, Assam, India, Guwahati/IND
- P11 **Optimal conditions for the biotransformation of limonene to limonene-1,2-diol by *Colletotrichum nymphaeae* CBMAI o864**
A. Sales¹; G. Pastore¹; J. Bicas¹; ¹ University of Campinas/BR

POSTER PROGRAMME

- P12 **Patchoulol production with metabolically engineered *Corynebacterium glutamicum***
N. Henke¹; A. Brauner¹; J. Wichmann²; T. Baier²; J. Frohwitter¹; K. Lauersen²; J. Risse³; P. Peters-Wendisch¹; O. Kruse²; V. Wendisch¹; ¹ Genetics of Prokaryotes, Faculty of Biology & CeBiTec, Bielefeld University, Bielefeld/D; ² Algae Biotechnology & Bioenergy, Faculty of Biology & CeBiTec, Bielefeld University, Bielefeld/D; ³ Fermentation Technology, Technical Faculty & CeBiTec, Bielefeld University, Germany, Bielefeld/D
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- P13 **Levels of pro-inflammatory cytokines of rats fed with different enantiomers of α -terpineol in a diet-induced obesity experimental model**
G. Sousa¹; C. Cazarin¹; M. Maróstica Jr.¹; J. Bicas¹; ¹ University of Campinas/BR
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- P14 **Discrimination of dog palatant solutions using human olfactory receptors platform**
S. Cambou¹; M. Guilloux¹; E. Leclerc¹; L. Callejon¹; F. Galibert²; I. Guiller¹; M. Philippeau³; Y. Quesnel³; ¹ Diana Pet Food, Elven/F; ² IGDR, Université de Rennes 1, Rennes/F; ³ ChemCom S.A, Bruxelles/B
-
- P15 **Apple skin of old apple varieties as terpene factory**
I. Tauber¹; G. Innerhofer²; E. Leitner¹; B. Siegmund¹; ¹ Graz University of Technology/A; ² School for Fruit Growing & Viticulture Silberberg, Leibnitz/A
-
- P16 **Application of *Galactomyces geotrichum* mold for flavour enhancement of pumpnickel bread**
M. Majcher¹; K. Myszk¹; D. Olszak¹; K. Szudera¹; H. Jeleń¹; ¹ Poznan University of Life Sciences/PL
-
- P17 **Production and characterization of a recombinant patchoulol synthase for the biocatalytic production of terpenoid structures**
K. Ekramzadeh¹; T. Scheper¹; S. Beutel¹; ¹ Leibniz Universität Hannover / Institut für Technische Chemie/D
-
- P18 **Authentication and composition of white truffle-flavored oils**
F. Wernig¹; F. Buegger²; K. Pritsch²; J. Niimi¹; R. Splivallo¹; ¹ Goethe Universität Frankfurt/D; ² German Research Center for Environmental Health, Neuherberg/D
-
- P19 **Engineering of carotenoid cleavage dioxygenases (CCD) to optimize apocarotenoid production in yeast cell factories**
N. Werner¹; E. Agosin¹; ¹ Pontificia Universidad Católica de Chile, Santiago/RCH
-
- P20 **Flavors produced by enzymatic depolymerisation of lignin**
A. Jahn¹; L. Blaesing¹; D. Kaiser¹; M. Bertau¹; ¹ TU Freiberg/D
-
- P21 **Optimized bioconversion using CYP450 monooxygenases**
T. Geißler¹; J. Ritzer¹; K. Geißler¹; E. Gross¹; J. Ley¹; ¹ Symrise AG, Holzminden/D
-
- P22 **Metabolic engineering of *Saccharomyces cerevisiae* for production of plant β -xanthophylls**
V. Cataldo¹; N. Arenas¹; J. López¹; C. Camilo¹; E. Agosin¹; ¹ Pontificia Universidad Católica de Chile, Santiago/RCH
-
- P23 **Construction of a sustainable yeast platform for the production of apocarotenoid precursors**
J. López¹; M. Ibaceta²; F. Saitua²; V. Cataldo²; D. Bustos²; G. Diaz²; V. Zavaleta³; E. Agosin²; ¹ DICTUC S.A., Santiago/D; ² Pontificia Universidad Católica de Chile, Santiago/RCH; ³ DICTUC S.A., Santiago/RCH

POSTER PROGRAMME

- P24 **Analysis of fragrance intensity of volatile compounds, and gene expression in *Freesia* 'Shiny Gold'**
Y. Choi¹; G. Jo²; S. Khan³; J. Lee³; Y. Lee¹; Y. Kang¹; P. Park¹; S. Kim¹; H. Kwak¹; M. Ramya¹; H. Cho¹; ¹ National Institute of Horticultural & Herbal Science, Wanju/ROK; ² Jeonnam Agricultural Research & Extension Services, Naju/ROK; ³ LG household & health care ltd co. ltd, Seoul/ROK
-
- P25 **Molecular cloning and expression of *Cymbidium* cultivar Sunny Bell MYB1 and its role in the biosynthesis of floral volatile terpenoids**
M. Ramya¹; Y. Choi²; S. Lee²; H. An²; P. Park²; P. Park²; ¹ National Institute of Horticulture and Herbal Science, Jeonju/ROK; ² National Institute of Horticultural & Herbal Science, Wanju/ROK
-
- P26 **Analysis of floral scent profile *Cymbidium* cultivar Sael Bit by gas chromatography – mass spectrometry and q-RT-PCR**
P. Park¹; Y. Choi¹; S. Lee¹; H. An¹; P. Park¹; M. Ramya¹; ¹ National Institute of Horticultural & Herbal Science, Wanju/ROK
-
- P27 **Horticultural and flavour characteristics using electronic nose of *Lilium* interspecific hybrid between *L. davidii* and Asiatic lily**
Y. Choi¹; Y. Kang²; Y. Lee²; P. Park²; H. Kwak²; ¹ NIHHS RDA, Wanju/ROK; ² National Institute of Horticultural & Herbal Science, Wanju/ROK
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- P28 **Changes in aroma compounds produced by heterotrophic microalgae *Cryptocodinium cohnii* using solid-phase microextraction and gas chromatography – mass spectrometry/olfactometry during different growth phases**
M. Isleten Hosoglu¹; Y. Yuceer¹; ¹ Canakkale Onsekiz Mart University, Canakkale/TR
-
- P29 **Does geographical origin affect human-sensed black truffle aroma?**
C. Schüürmann¹; M. Vahdatzadeh¹; K. Targaczewski¹; S. Inumella¹; R. Splivallo¹; ¹ Goethe Universität Frankfurt, Institut für Molekulare Biowissenschaften/D
-
- P30 **Microwave-assisted hydrodistillation of essential oils from dried lavender leaves and their stabilization by micro/nanoemulsions**
M. Isleten Hosoglu¹; M. Çelebi Uzkuç¹; Y. Yuceer¹; S. Sengel¹; N. Sahiner¹; ¹ Canakkale Onsekiz Mart University, Canakkale/TR
-
- P31 **Engineering of prodigiosin synthase PigC towards mutasynthesis of novel prodiginines**
S. Brands¹; A. Loeschcke²; A. Ruff¹; U. Schwaneberg¹; ¹ RWTH Aachen University/D; ² HHU Düsseldorf, Jülich/D
-
- P32 **Isolation and characterization of bioactive hop constituents for application as preserving and flavor additive in food industry**
E. Martínez-Rojas¹; S. Glass²; D. Olbrich¹; F. Wagner³; M. Wessel¹; M. Ebert¹; L. Garbe¹; ¹ University of Applied Sciences Neubrandenburg/D; ² Zentrum für Ernährung und Lebensmitteltechnologie gGmbH, Neubrandenburg/D; ³ Torney Landfleischrei Pripsleben GmbH, Altentreptow/D
-
- P33 **Valorisation of Amyris spent yeast waste biomass as a new source for sustainable production of β -glucans**
J. Fernandes¹; M. Amorim¹; A. Oliveira¹; A. Pintado¹; J. Costa¹; R. Madureira¹; G. Hayen²; M. Pintado¹; ¹ Portuguese Catholic University, Porto/P; ² Amyris, Inc., Emeryville, CA/USA

POSTER PROGRAMME

- P34 **Plant-based cellular agriculture**
H. Rischer¹; ¹ VTT Technical Research Centre of Finland Ltd., Espoo/FIN
- P35 **Identification of monoterpenoid resistance mechanisms in *Pseudomonas putida***
F. Schempp¹; K. Hofmann¹; J. Mi-Thomsen¹; F. Kirchner¹; H. Schewe¹;
J. Schrader¹; M. Buchhaupt¹; ¹ DECHEMA-Forschungsinstitut, Frankfurt am Main/D
- P36 **Localization of secondary metabolites in plant tissues by MALDI Mass Spectrometry Imaging**
H. Bednarz¹; N. Roloff¹; K. Niehaus¹; ¹ Bielefeld University/D
- P37 **Natural flavour compounds from industrial riboflavin fermentation broths**
F. Birk¹; M. Fraatz¹; R. Pelzer²; H. Zorn¹; ¹ Justus-Liebig University Giessen/D; ² BASF SE, Ludwigshafen/D
- P38 **Electrochemical production of the sesquiterpenoid α -humulene with *Cupriavidus necator***
S. Milker¹; C. Kunze¹; A. Sydow¹; D. Holtmann¹; ¹ DECHEMA Forschungsinstitut, Frankfurt am Main/D
- P39 **Whole-cell biocatalytic production of fatty aldehydes and alcohols by α -dioxygenase or carboxylic acid reductase in *E. coli***
H. Schewe¹; S. Maurer¹; J. Schrader¹; M. Buchhaupt¹; ¹ DECHEMA-Forschungsinstitut, Frankfurt am Main/D
- P40 **EziG™-immobilized biocatalysts: Applications in organic solvents and continuous flow**
M. Thompson¹; ¹ EnginZyme AB, Stockholm/S
- P41 **Oxyfunctionalization of terpenes applying novel oxygenases**
J. Klenk¹; B. Hauer¹; ¹ Institute of Technical Biochemistry/ University of Stuttgart/D
- P42 **Uncommon soil bacteria reveals novel and promising oxygenases**
A. Hunold¹; B. Hauer¹; ¹ Institute of Technical Biochemistry/ University of Stuttgart/D
- P43 **Anthocyanins on demand**
R. Karlova¹; M. Levisson¹; J. Beekwilder²; ¹ Universitat Wageningen-WUR, Wageningen/NL; ² Universitat Wageningen-WPR, Wageningen/NL
- P44 **Tailoring of plant secondary metabolism in horticultural plant residuals by targeted stress application**
L. Junker¹; F. Genzel¹; J. Büchenschütz¹; B. Thiele¹; U. Schurr¹; B. Usadel²; A. Wormit²;
A. Wiese-Klinkenberg¹; ¹ Forschungszentrum Jülich GmbH, Institut für Bio- und Geowissenschaften / Pflanzenwissenschaften (IBG-2)/D; ² RWTH Aachen, Institute for Botany and Molecular Genetics/D
- P45 **Does *Pseudomonas* produce terpenes? Characterization of terpene synthases from *Pseudomonas***
R. Poddaturi¹; R. Hennessy¹; M. Petersen¹; P. Stougaard¹; N. Jørgensen¹; ¹ University of Copenhagen/DK
- P46 **Evaluation of resistance to high concentrations of α -pinene for bioconversion processes**
K. Costa Vespermann¹; B. Pereira e Silveira¹; F. Teixeira¹; G. Molina¹; ¹ Universidade Federal dos Vales do Jequitinhonha e Mucuri, Diamantina/BR

POSTER PROGRAMME

- P47 **Manipulating Riesling wine volatile composition during fermentation**
Y. Grebneva¹; J. Hixson¹; J. Bellon¹; M. Herderich¹; ¹ The Australian Wine Research Institute, Adelaide/AUS
- P48 **Bacterial cytochromes P450 are promising terpene oxidases**
M. Litzenburger¹; R. Bernhardt¹; ¹ Saarland University, Saarbrücken/D
- P49 **Development of a chromatographic process for the recovery of 2-phenylethanol from a post-biotransformation mixture**
M. Polakovic¹; I. Simko¹; V. Illeova¹; M. Gramblicka¹; ¹ Slovak University of Technology, Bratislava/SK
- P50 **Genome mining of *Bacillus megaterium*: characterization of a carotenoid biosynthesis operon**
P. Hartz¹; M. Milhim¹; S. Trenkamp²; R. Bernhardt¹; F. Hannemann¹; ¹ Saarland University, Saarbrücken/D; ² Metabolomic Discoveries GmbH, Potsdam/D
- P51 **Metabolite profiling and biosynthetic pathway discovery of unique bioactive terpenoids from the *Eremophila* genus**
O. Gericke¹; P. Irini²; B. Møller²; M. Bayly³; R. Fowler³; B. Buirchell⁴; A. Heskes²; ¹ University of Copenhagen, Frederiksberg C/DK; ² University of Copenhagen/DK; ³ The University of Melbourne, Melbourne/AUS; ⁴ Department of Agriculture and Food Western Australia, Perth/AUS
- P52 **Elucidation of stress responsive jinkohol emission in *Aquilaria filaria* suspension cultures by gene expression studies**
C. Cerboncini¹; C. Müllenborn-Lübken²; A. Olarte²; J. Rusteberg³; E. Diaz⁴; R. Wittlake⁴;
I. Lanfermann⁴; J. Panten⁴; ¹ Forschungszentrum Jülich/D; ² Forschungszentrum Jülich IBG2 Plant Science/D; ³ Forschungszentrum Jülich GmbH, IBG 2 Plant Science/D; ⁴ Symrise AG, Holzminden/D
- P53 **Metabolic engineering for the production of a fragrance molecule: viridiflorol**
S. Shukal¹; X. Chen¹; C. Zhang¹; ¹ Biotrans, A*STAR, Singapore/SGP
- P54 **Production of pectinase enzyme from fungal isolates in Nepal**
J. Upadhyaya¹; ¹ Kathmandu University/NEP
- P55 **Three-steps in one-pot: Whole-cell biocatalytic synthesis of enantiopure (+)- and (-)-pinoselinol**
M. Girhard¹; E. Ricklefs¹; V. Urlacher¹; ¹ Heinrich-Heine-Universität Düsseldorf/D
- P56 **Taste receptors in high-throughput screening assay to discover new flavor molecules**
W. Guo¹; S. Ho²; A. Koay³; W. Seetoh³; M. Lee³; H. Too²; N. Lindley³; ¹ Biotransformation Innovation Platform, A*STAR, Singapore/SGP; ² National University of Singapore/SGP; ³ Biotrans, A*STAR, Singapore/SGP
- P57 **Cloning of the phenolic acid decarboxylase (PAD) gene from *Bacillus subtilis* in *E. coli* for the production of 4-vinylguaiaicol**
J. Rabenhorst¹; R. Dirkes¹; I. Maus²; A. Schlüter²; ¹ Ostwestfalen-Lippe University of Applied Sciences, Lemgo/D; ² Bielefeld University/CeBiTec, Bielefeld/D
- P58 **Identifying fraudulent natural products with carbon-14 testing**
C. Ramos¹; ¹ Beta Analytic, London/UK

P59 **Turning cells into reagents - assay ready cells for receptor-based screening**
O. Wehmeier¹; H. Benjes¹; V. Mazurov¹; A. Loa¹;¹ acCELLerate GmbH, Hamburg/D

P60 **A combinatorial metabolic engineering strategy for the production of plant triterpenes in *Saccharomyces cerevisiae***
J. Bröker¹; B. Müller²; N. van Deenen¹; D. Prüfer³; C. Schulze Gronover²; ¹ Westfälische Wilhelms-Universität, Münster/D; ² Fraunhofer Institut für Molekularbiologie und Angewandte Oekologie, Münster/D; ³ Westfälische Wilhelms-Universität/Fraunhofer Institut für Molekularbiologie und Angewandte Oekologie, Münster/D