

5th Pigments in Food congress
14-16 August, 2008, Helsinki, Finland

Poster presentations

Anthocyanins

- P1 Storage stability of phenolic compounds and antioxidant activity in anthocyanin-colored model systems**
Thorsten Maier¹, Matthias Fromm¹, Andreas Schieber², Dietmar R. Kammerer^{1*}, Reinhold Carle¹, ¹ Institute of Food Science and Biotechnology, Hohenheim University, Germany, ² Department of Agricultural, Food and Nutritional Science, University of Alberta, Canada
- P2 Flavonoids in five cultivars of *Hibiscus sabdariffa* L.**
Placida Patricio Chino¹, Dolores Vargas-Álvarez¹, Ma. Elena Moreno Godinez¹, Agustín Damián Nava², Elías Castro Hernández³, Unidad Académica de Ciencias Químico Biológicas, Unidad ciencias agropecuarias y ambientales, Unidad Académica de Veterinaria de la Universidad Autónoma de Guerrero, México
- P3 Anthocyanin and tannin changes during the winemaking and ageing of a Mexican red wine and their relationship with the colour**
Leticia S. Quintero¹, Yolanda M. Salinas², David, H. Rubio¹, and Arturo, M. Hernández¹, ¹ Universidad Autónoma Chapingo. Departamento de Ingeniería Agroindustrial., ² Instituto Nacional de Investigaciones Forestales y Agropecuarias, México
- P4 Anthocyanins in *Ardisia compressa* fruits and characterization of their wines**
Yolanda S. Moreno¹, Ariadna H. García², and David R. Hernández^{2,1} Instituto Nacional de Investigaciones Forestales y Agropecuarias, México, ² Universidad Autónoma Chapingo, México.
- P5 Stability of anthocyanins in berry jams, marmalades and powders during industrial processing**
Jarkko K. Hellström, Pirjo H. Mattila, MTT AgriFood Research Finland, Biotechnology and Food Research, Finland
- P6 Anthocyanins in some Finnish blueberry varieties**
Juha-Matti Pihlava¹, Pirjo Mattila² & Risto Tahvonen³, ¹ MTT Agrifood Research Finland, Laboratories, ² MTT Agrifood Research Finland, Biotechnology and Food Research, ³ MTT Agrifood Research Finland, Plant Production Research, Finland
- P7 Correlation among total anthocyanins and phenolics, colour and radical scavenging capacity of red wines from Piedmont (Italy)**
Fabiano Travaglia, Jean Daniel Coïsson, Monica Locatelli, Marco Arlorio, Matteo Bordiga and Aldo Martelli, DiSCAFF and DFB Center, Università degli Studi del Piemonte Orientale "A. Avogadro", Italy
- P8 Flavonoid profile of *Prunus mahaleb* fruits**
Blando Federica^{1*}, Carmine Negro², Antonio Miceli², Luigia Longo³, Giuseppe Vasapollo³ and Luigi De Bellis^{2,1} Institute of Sciences of Food Production, CNR, Lecce, Italy, ² DiSTeBA, Lecce University, Via Prov.le Lecce-Monteroni, Lecce, Italy, ³ Innovation Dept., Lecce University, Lecce, Italy
- P9 Anthocyanins and carotenoids in two tropical fruits from the Sapotaceae family**
Veridiana V. de Rosso, Adelia F. de Faria, Adriana Z. Mercadante, Department of Food Science, Faculty of Food Engineering, State University of Campinas, Brazil
- P10 Development of a Database for Anthocyanins in Austrian Fruits**
Riedl Petra, Murkovic Michael, Department of Food Chemistry and Technology, Graz University of Technology, Austria
- P11 Enhancing antioxidant status of wheat-based extruded products with black carrot phenolics**

Izabela Konczak^{a,b*}, Surjani Uthayakumaran^{a,b}, and Lloyd Simons^{b,c}. ^a Food Science Australia, Riverside Life Science Centre, Australia, ^b Commonwealth Scientific and Industrial Research Organisation, Food Futures National Research Flagship, Australia ^c Food Science Australia, 671 Sneydes Rd., Werribee, VIC 3030, Australia

P12 Australian native fruits – potential source of bioactive compounds reducing proliferation of cancer cells.

Izabela Konczak^{*}, Diane Xiao, Matthew Dunstan, Deborah Shapira[†] & Garry Lee. CSIRO Food Science Australia, [†]CSIRO, Molecular & Health Technologies, Australia

P13 Screening anthocyanin-rich extracts of native Australian fruits for differential anticancer activity

Aaron C Tan^{1,2*}, Izabela Konczak¹, Daniel M Sze^{2,1} CSIRO, Food Science Australia, Australia, ² Faculty of Pharmacy, The University of Sydney, Australia

P14 Reactivity studies by NMR on anthocyanins occurring in fruits and berries

Monica Jordheim, Torgils Fossen, Helene Lunder, Jon Songstad and Øyvind M. Andersen, Department of Chemistry, University of Bergen, Norway

Betalains

P15 Study on betalains in fruits of *Myrtillocactus geometrizans*

Sławomir Wybraniec^{1*}, Paweł Stalica¹, Yosef Mizrahi². ¹Faculty of Analytical Chemistry, Institute, C-1, Department of Chemical Engineering and Technology, Cracow University of Technology, Cracow, Poland, ²Department of Life Sciences, The Institutes for Applied Research, Ben Gurion University of the Negev, Beer-Sheva, Israel

P16 Change of peroxidase and polyphenol oxidase activities, betalains and total phenol content during storage of red beet (*Beta vulgaris* L.) extract treated by high pressure carbon dioxide

Xuan Liu, Yanxiang Gao^{*}, Honggao Xu, College of Food Science & Nutritional Engineering, China Agricultural University, Beijing, China

P17 LC-ESI-MS/MS identification of betacyanins in two Amaranthaceae species

Sławomir Wybraniec^{1*}, Paweł Stalica¹, Gerold Jerz², Piotr Suryło¹, Tadeusz Michałowski¹, Grażyna Jaworska³, Adriana Biernacka³. ¹Faculty of Analytical Chemistry, Institute C-1, Department of Chemical Engineering and Technology, Cracow University of Technology, Poland, ²Institute of Food Chemistry, Technische Universität Braunschweig, Germany, ³Agricultural University of Kraków, Department of Raw Materials and Fruit and Vegetable Processing, Cracow, Poland

P18 Betacyanins in fruits of *Melocactus bahiensis*

Sławomir Wybraniec^{*}, Paweł Stalica^{*}, Faculty of Analytical Chemistry, Institute C-1, Department of Chemical Engineering and Technology, Cracow University of Technology, Cracow, Poland

P19 Degradation of betanin and its decarboxylated derivatives in organic-aqueous solutions

Sławomir Wybraniec^{1*}, Paweł Stalica¹, Maciej Szaleniec², Aneta Spórna¹, Tadeusz Michałowski¹. ¹Faculty of Analytical Chemistry, Institute C-1, Department of Chemical Engineering and Technology, Cracow University of Technology, Cracow, Poland, ²Institute of Catalysis and Surface Chemistry, Polish Academy of Sciences, Cracow, Poland

Carotenoids

P20 Stability of lutein and lutein ester preparations obtained using supercritical fluid extraction of *Tagetes erecta*

Eila Järvenpää¹, Piia Tastula¹, Tarja Aro^{2,3}, Nina Rostiala¹, Veli Hietaniemi², Rainer Huopalahti¹. ¹ Dept. Biochemistry and Food Chemistry, University of Turku, ² MTT Agrifood Research Finland, ³ Present address: Felix Abba Oy Ab, Turku, Finland

P21 Production of highly-pigmented plants in the field tests in South-Western Finland

Kari Valta¹, Juha Tilkanen², Heikki Aro³, Silvia Peris⁴, and Soile Hänninen^{5,1} AF-Innova, Turku, ² Biokasvu Oy, Tarvasjoki, ³ MTT Agrifood Research Finland, Jokioinen, Present address: TE Centre for Southwestern Finland, Turku, Finland, ⁴ Industrial Tecnica Pecuaría S.A, Barcelona, SPAIN, ⁵ ProAgria Farma, Turku, Finland

P22 Carotenoid Composition of Jackfruit (*Artocarpus heterophyllus*) Determined by HPLC-PDA-MS/MS

Adelia F. de Faria, Veridiana V. de Rosso, Adriana Z. Mercadante, Faculty of Food Engineering, Department of Food Science, University of Campinas (UNICAMP), Brazil

P23 Carotenoid determination from wheat and barley by HPLC

Loredana F. Leopold¹, Heinrich Grausgruber², Rainer Schuhmacher³, Carmen Socaciu⁴, Emmerich Berghofer¹, Susanne Siebenhandl¹, ¹Department of Food Science and Technology, Division of Food Technology, University of Natural Resources and Applied Life Sciences, Vienna, Austria, ²Department of Applied Plant Sciences and Plant Biotechnology, University of Natural Resources and Applied Life Sciences, Vienna, Austria, ³IFA Tulln, University of Natural Resources and Applied Life Sciences, Tulln, Austria, ⁴Department of Chemistry and Biochemistry, University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, Romania

P24 Degradation products formed during carotenoid heating in a simulated cashew apple juice

Leila Q. Zepka; Adriana Z. Mercadante, Department of Food Science, Faculty of Food Engineering, University of Campinas, Brazil

P25 Thermal degradation kinetics of carotenoids in a simulated cashew apple juice and its impact on the solution color

Leila Q. Zepka¹; Maria A.A.P. da Silva²; Claudio D. Borsarelli³; Adriana Z. Mercadante¹ Department of Food Science¹, Department of Food and Nutrition², Faculty of Food Engineering, University of Campinas, Brazil, Instituto de Ciencias Químicas, Facultad de Agronomía y Agroindustrias, Universidad Nacional Santiago del Estero, Santiago del Estero, Argentina³

P26 Developing an emulsifier system in order to improve the carotenoid bioaccessibility

Elisabet Fernández-García¹, Francisco Rincón², Dámaso Hornero-Méndez¹, and Antonio Pérez-Gálvez¹, ¹Grupo de Química y Bioquímica de Pigmentos. Departamento de Biotecnología de Alimentos, Instituto de la Grasa (CSIC), Sevilla, Spain, ²Department of Food Science and Technology, University of Córdoba, Spain.

P27 Differential *in vitro* assimilation of carotenoids embedded in mixed micelles or hydrophilic inclusion complexes

Elisabet Fernández-García, Manuel Jarén-Galán, Juan Garrido-Fernández and Antonio Pérez-Gálvez, Grupo de Química y Bioquímica de Pigmentos. Departamento de Biotecnología de Alimentos, Instituto de la Grasa (CSIC), Sevilla, Spain.

P28 Sea buckthorn berries as a source of carotenoids

Piret Raudsepp, Olga Borolina, Tiina Lõugas, Department of Food Processing, Tallinn University of Technology, Estonia

P29 Variation in lycopene and β -carotene contents of Brazilian tomato and their correlations with color.

Juliana Julian Torres Gama¹, Mateus Henrique Petrarca¹, Antonio Carlos Tadiotti² and Célia Maria de Sylos^{1*}, ¹Faculdade de Ciências Farmacêuticas – UNESP, Departamento de Alimentos e Nutrição, Araraquara, Brazil, ²Alimentos Predilecta LTDA, São Lourenço do Turvo Matão, Brazil

P30 Variations in carotenoid contents and color as affected by tomatoes processing into ketchup.

Juliana Julian Torres Gama¹, Mateus H. Petrarca¹, Antonio C. Tadiotti² and Célia Maria de Sylos^{1*}, ¹Faculdade de Ciências Farmacêuticas – UNESP, Departamento de Alimentos e Nutrição, Araraquara, Brazil, ²Alimentos Predilecta LTDA, São Lourenço do Turvo Matão, Brazil

P31 Effect of colorific in chicken meat lipid oxidation

- Wellington F. Castro, Gislaine C. Nogueira, Lilian R. B. Mariutti, Neura Bragagnolo
Department of Food Science, Faculty of Food Engineering, University of Campinas, Brazil
- P32 Annatto as antioxidant in chicken patties during frozen storage**
Gislaine C. Nogueira, Lilian R. B. Mariutti, Neura Bragagnolo, Department of Food Science, Faculty of Food Engineering, University of Campinas, Brazil
- P33 Bixin content in chicken food decreases after heat treatment and during storage**
Fernanda G. Teixeira, Neura Bragagnolo, Department of Food Science, Faculty of Food Engineering, University of Campinas, Brazil
- P34 Study on antioxidant activity of pigment extract from Gardenia (*Gardenia jasminoides* Ellis) fruit**
Bin Yang, Yanxiang Gao, Xuan Liu, College of Food Science & Nutritional Engineering, China Agricultural University, Beijing, China
- P35 First isolation of *Brevibacterium linens* (*Brevibacterium aurantiacum* sp. nov.) pigments in the rind of Vieux-Pané, an industrial red-smear ripened soft cheese.**
Patrick Galaup¹, Johann Piriou¹, Alain Valla², Fabienne Guérard¹ and Laurent Dufossé^{1,3*},¹ Laboratoire ANTiOX, Université de Bretagne Occidentale, Pôle Universitaire Pierre-Jakez Hélias, Créac'h Gwen, Quimper, France, ²FRE 2125 CNRS, Chimie et Biologie des Substances Naturelles 6, Quimper, France, ³ Laboratoire de Chimie des Substances Naturelles et des Sciences des Aliments, Université de La Réunion, E.S.I.D.A.I., La Réunion, France.
- P36 Colorimetric study of marennine, a blue-green pigment from the diatom *Haslea ostrearia* responsible for natural greening of cultured oyster**
J-B. Pouvreau^{1,4}, M. Morançais¹, P. Pondaven¹, J. Fleurence¹, F. Guérard² and L. Dufossé^{2,3*,1} Université de Nantes, UFR Sciences, Nantes, France, ²Laboratoire ANTiOX, Université de Bretagne Occidentale, Site IUP Innovation en Industries Alimentaires, Pôle Universitaire Pierre-Jakes Hélias, Quimper, France, ³Laboratoire de Chimie des Substances Naturelles et des Sciences des Aliments, ESIDAI, Université de la Réunion, Sainte-Clotilde, Ile de la Réunion, France, ⁴Université de Nantes, UFR Sciences, Nantes France
- P37 Supercritical solvent: new method for pigment extraction in Food Industry**
Maryam Zohri¹ – Leila Rofehgarinejad²
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- P38 Carotenoid Composition Changes in Male Flower Petals from *Osmanthus fragrans aurantiacus* during Flowering**
Susanne Baldermann^{1,2}, Annika Reinhard¹, Naoharu Watanabe², Peter Fleischmann^{1*}
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- P39 Association between banana pulp colour hue and β -carotene: nutrition and health implications**
Robert Fungo^{1,2,4,5*}, Michael Pillay^{3,4}, Joyce Kikafunda¹ and Wilberforce Tushmemereirwe^{5,1} Department of Food Science and Technology, Makerere University, Kampala, Uganda; ²Government Chemist and Analytical Laboratory., Uganda; ³Vaal University of Technology, South Africa; ⁴International Institute of Tropical Agriculture, Uganda; ⁵National Banana Research Programme (NBRP). Kawanda Agricultural Research Institute, Kampala, Uganda.
- P40 Vegetable puddings coloured with microalgae biomass and natural pigments**
Ana Paula Batista¹, Anabela Raymundo¹, José Empis², Luísa Gouveia^{3,1} Núcleo de Investigação em Engenharia Alimentar e Biotecnologia, Instituto Piaget, Almada, Portugal, ² IBB - Centro de Engenharia Biológica e Química, Instituto Superior Técnico, Lisboa, Portugal, ³ Instituto Nacional de Engenharia e Tecnologia Industrial - INETI-DER - Unidade Biomassa, Lisboa, Portugal
- P41 Microalgae as natural colouring agent in food products**

Ana Paula Batista¹, Anabela Raymundo¹, Narcisa M. Bandarra², José Empis³, Luísa Gouveia⁴.¹ Núcleo de Investigação em Engenharia Alimentar e Biotecnologia, Instituto Piaget - ISEIT de Almada, Almada, Portugal, ² IPIMAR – INRB. Departamento de Inovação Tecnológica e Valorização dos Produtos da Pesca. Lisboa, Portugal, ³ IBB - Centro de Engenharia Biológica e Química, Instituto Superior Técnico, Lisboa, Portugal, ⁴ Instituto Nacional de Engenharia e Tecnologia Industrial - INETI-DER - Unidade Biomassa, Lisboa, Portugal

Chlorophylls

- P42 Evaluating Lipochromes and other Bioactive Phytochemicals in Organic-Depitted Virgin Olive Oil**
A. Ranalli, D. Marchegiani, S. Contento, D. Pardi, P. Nicolosi, CRA-Centro di Ricerca per l'Olivicoltura e l'Industria Olearia, Sede Scientifica di Città S. Angelo, Pescara, Italy
- P43 Termodegradation of chlorophyll pigments in virgin olive oils**
Ramón Aparicio-Ruiz, M^a Isabel Mínguez-Mosquera and Beatriz Gandul-Rojas. Grupo de Química y Bioquímica de Pigmentos, Departamento de Biotecnología de Alimentos. Instituto de la Grasa (CSIC), Sevilla, Spain.
- P44 Transfer of chlorophyll pigments from an oily food matrix to the human intestinal epithelial cells**
Beatriz Gandul-Rojas, Lourdes Gallardo-Guerrero and M^a Isabel Mínguez-Mosquera. Grupo de Química y Bioquímica de Pigmentos, Departamento de Biotecnología de Alimentos. Instituto de la Grasa (CSIC), Sevilla, Spain
- P45 pH Dependence of the kinetic parameters in the pheophytinization reaction**
Elisabet Fernández-García, Antonio Pérez-Gálvez, Juan Garrido-Fernández and Manuel Jarén-Galán, Grupo de Química y Bioquímica de Pigmentos. Departamento de Biotecnología de Alimentos, Instituto de la Grasa (CSIC), Sevilla, Spain
- P46 Influence of consumption custom of pea on bioavailability of chlorophylls**
Lourdes Gallardo-Guerrero, Beatriz Gandul-Rojas and M^a Isabel Mínguez-Mosquera. Grupo de Química y Bioquímica de Pigmentos, Departamento de Biotecnología de Alimentos. Instituto de la Grasa (CSIC), Sevilla, Spain
- P47 Effect of phenolic compounds present in olive pulp on peroxidase-chlorophyll bleaching activity**
Lourdes Gallardo-Guerrero¹, Francisca Gutiérrez-Rosales², José J. Ríos-Martín², M^a Isabel Mínguez-Mosquera¹ and Beatriz Gandul-Rojas¹.¹ Grupo de Química y Bioquímica de Pigmentos, Departamento de Biotecnología de Alimentos. ² Departamento de Caracterización y Calidad de Alimentos. Instituto de la Grasa (CSIC), Sevilla, Spain
- P48 Lipophilic bioactives in Australian-grown 'Hass' avocados**
Dimitrios Zabarar*, Izabela Konczak, Pat Aguas, Georgina Giannikopoulos, Matthew Dunstan, Cecile Robert, CSIRO/Food Science Australia, Australia

Pigments

- P49 Improved extraction of melanoidins from roasted cocoa hulls UNDER POWER ultrasound AND microwaveS systems: preliminary results**
Marco Arlorio¹, Jean Daniel Coisson¹, Fabiano Travaglia¹, Monica Locatelli¹ and Giancarlo Cravotto², ¹ DiSCAFF and DFB Center, Università del Piemonte Orientale "A. Avogadro", Novara, Italy, ² Dipartimento di Scienza e Tecnologia del Farmaco, Università di Torino, Torino, Italy
- P50 Factors affecting phenolics extractability from plant materials: a study with leaves of *Glyphaea brevis* Spreng (Monach)**

William Dakam*¹, Julius Oben¹, Jeanne Ngogang^{2,1}Laboratory of Nutrition and Nutritional Biochemistry, Department of Biochemistry, Faculty of Science, University of Yaounde I, Cameroon, ²Faculty of Medicine and Biomedical Sciences, University of Yaounde I, P.O. Box 812 Yaounde, Cameroon

- P51 Studying of the origin of date syrup's colourants and the possibility of their removal**
Leila Rofehgari-Nejad , Adel Ahmadi Zenouz , Javad Hesari , Mustafa Valizadeh and Maryam Zohri, Islamic Azad University - Tabriz Branch - Food Science & Technology Dep. Tabriz-Iran
- P52 Isothiocyanates as a potential source of discoloration in processed *Brassicaceae* vegetables**
Karel Cejpek and Jan Velíšek, Institute of Chemical Technology, Dept. of Food Chemistry and Analysis, Czech Republic
- P53 Rapid profiling of plant pigments by infrared spectroscopy**
Rodriguez-Saona L.E.,^{1*} Giusti, M.M.,¹ Schwartz S.J.,¹ Francis, D.M.,² Tay, D.,³Manrique, I.,³ De Nardo, T.,¹ and Shiroma, C.^{1, 1} Food Sci. Technol. Dpt., The Ohio State University, USA, ²Hort. Crop Sci., Ohio Agri. Res. Develop. Center, USA, ³ International Potato Center, Peru
- P54 Exhibition poster**
Fast and non destructive measurement of anthocyanins, flavonols, hydroxycinnamic acids and chlorophyll in plants
V. Martinon, S. Lejealle, G. Masdournier, M. Le Moigne, E. Besançon, M. Cheriet, Force-A, Centre Univ. Paris Sud, Orsay, France