THE FOOD FACTOR Conference

PROGRAM OUTLINE

Conference schedule

Thursday, 8 November 2018	
09:30-10:30	Registration and coffee The conference/registration desk will be placed at the main hall. In any case, attendees will be able to pick up the conference materials at the registration desk at any time on 8 November
10:30-13:00	Welcome speech and oral session
13:00-14:00	Lunch break (buffet at the main hall)
14:00-16:00	Oral session
16:00-16:40	Poster session and coffee break (at the main hall) Posters are expected to be posted during the whole day. Presenters are expected to be available for discussion of their posters during the poster session. Please check the code given to your poster. That code indicates which panel you must stick your poster to.
16:40-18:00	Oral session

Friday, 9 November 2018	
09:30-10:00	Coffee (at the main hall)
10:00-13:00	Social program (city tour of Malaga by bus)
13:00-14:00	Farewell lunch (buffet at the main hall)

Thursday, 8 November 2018

ORAL PRESENTATIONS

Chair: Antonio Martínez-Murcia (Miguel Hernández University and Genetic PCR Solutions, Spain)

10:30-11:00	**KEYNOTE LECTURE** Fast testing of ready-to-eat foods for pathogen detection by qPCR: from samples to results in the same day **Antonio Martínez-Murcia**
11:00-11:20	Evaluation of the physical and bioactive modifications in the development of a novel fermented bee-pollen product using a lactic acid bacteria and yeast consortium **Carlos Mario Zuluaga-Dominguez**
11:20-11:40	Effects of season, cow cleanliness and hygienic condition of milking equipment on *Pseudomonas* spp. count of bulk tank milk **Ana Bugueiro and Tania Ferreiro**
11:40-12:00	Overcoming the limitations to identify *Dekkera bruxellensis* in wine environment: performance and specificity evaluation of two specie-specific RNA-FISH probes **Patricia Branco**
12:00-12:20	Functional and sensory properties of spaghetti supplemented with supercritical CO_2 extracted pumpkin oil encapsulated in α-cyclodextrins **Miriana Durante**
12:20-12:40	Impact of alga *Bifurcaria bifurcata* extracts on the quality of fresh and canned fish products **Santiago P. Aubourg**
12:40-13:00	Food supplements based on lignans and resveratrol from waste materials **Jan Triska and Nadezda Vrchotova**
13:00-14:00	**LUNCH BREAK (Buffet at the main hall)**

Chair: Santiago P. Aubourg (Institute of Marine Research (CSIC), Spain)

14:00:14:20	Inhibition of enzyme activity in frozen fish by previous high-pressure processing: Impact on deteriorative chemical changes **Santiago P. Aubourg**

14:20-14:40	Understanding how to accelerate cheese-making: rennet gelation behaviour in the presence of concentrated native whey proteins **Charitha Jayani Gamlath**
14:40-15:00	In Vitro Digestion of Polysaccharide Blended Whey Protein Hydrogels: A Time Domain NMR Relaxometry Study **Mecit Oztop**
15:00-15:20	The Effect of Addition of *Orchis anatolica* Gum on Phase Behaviour, Physicochemical, Rheological and Microstructural Properties of Milk Protein Dispersions **Birsen Bulut Solak**
15:20-15:40	Amino acids uptake during lager fermentation: Evaluation of re-pitching effect in different fermentation batches **Maria João Menezes Carvalho**
15:40-16:00	Determination and Validation with UPLC-FLD of T-2 and HT-2 mycotoxins in cereals **Rita De Pace and Paola D'Agnello**
16:00-16:40	**POSTER SESSION & COFFEE BREAK** **(at the main hall)**

Chairs: Tamas Komives (Plant Protection Institute, Hungarian Academy of Sciences, Hungary) and **Ines Ellouze** (Higher Institute of Biotechnology of Beja, Tunisia)

16:40-17:00	Aquaponics - a technology that reduces the environmental impact of food production **Tamas Komives**
17:00-17:20	Food packaging materials derived from food processing waste **Koro de la Caba**
17:20-17:40	Optimization of cholesterol-free and reduced-fat mayonnaise production using avocado puree instead of egg yolk **Mehmet Torun**
17:40-18:00	Formulation and sensory analysis of a Tunisian local formula of soda sweetened with steviol glycosides **Ines Ellouze**

POSTER PRESENTATIONS

Thursday, 8 November 2018 | Main Hall
From 16:00 to 16:40

Code	Title	Presenter(s)
1	Influence of cultivation conditions on the content of selected phenolic substances in *Ocimum basilicum* L.	**Jan Triska and Nadezda Vrchotova**
2	Development of four infrared spectroscopy models for mycotoxins contents in maize kernel	**Cecile Levasseur**
3	Near infrared spectroscopy as a tool for rapid identification of probiotic and pathogenic bacteria in dairy products	**Sylvain Treguier**
4	Identifying wine appellation via polyphenolic fingerprint using LC-HRMS and statistical analysis on Chardonnay and Pinot Noir wines from Prince Edward County, Ontario Canada	**Jeff Rivera**
5	Use of fermented olive paste for enrichment in bioactive compounds of typical Italian bakery products "tarallini"	**Miriana Durante**
6	Application of response surface methodology for the optimization of supercritical CO_2 extraction of oil from olive paste: yield, content of bioactive molecules and biological effects *in vivo*	**Marcello Salvatore Lenucci**
7	Agronomic and quality traits of different snake melon (*Cucumis melo* var. *flexuosus*) breeding lines and hybrids grown in Tunisia	**Marcello Salvatore Lenucci**
8	Metabolic pathway of conjugated fatty acids in newly isolated bacterium from dog feces	**Narito Asanuma and Shohei Nobukawa**
9	Probiotic utilization of *Glucerabacter canisensis* for augmenting the digestion of glucosylceramide from plant foodstuffs	**Narito Asanuma and Natsuki Kawahara**
10	HPLC-ELSD Analysis of five Platycosides in *Platycodi grandiflorum* Roots sourced from different Regions in Korea	**In Guk Hwang**
11	Korean Pine extracts pad affects maintain freshness during food storage time in the grape	**Yelin Jeong**
12	The potential of acid whey for lactobionic acid production	**Inga Ciprovica**

13	Effect of freezing, high pressure processing, and freeze-drying on the microbiological parameters of horseradish (*Armoracia rusticana* L.) juice	**Lolita Tomsone**
14	The changes of horseradish biologically active compounds and their bioavailability in an *in vitro* model of the human gastrointestinal tract	**Lolita Tomsone**
15	Serotyping and antibiotic susceptibility of *Listeria monocytogenes* isolated from food	**Wioleta Chajęcka-Wierzchowska and Anna Zadernowska**
16	Characterization of the ability of coagulase-negative staphylococci isolated from ready-to-eat food to form biofilms	**Wioleta Chajęcka-Wierzchowska and Anna Zadernowska**
17	Susceptibility of oat β-glucans from hot water extracts to native endo-β-glucanase hydrolytic action as revealed by multiple-detection HPSEC	**Malgorzata R. Cyran**
18	High molar mass water-extractable arabinoxylans in wheat grain: Variation in the level, molar mass and relationship with grain extract viscosity	**Malgorzata R. Cyran**
19	Development of sustainable soy protein films for food packaging	**Koro de la Caba**
20	Feeding with Ω3-rich natural sources increases the polyunsaturated fatty acid profile of dairy sheep products; preliminary results	**Nerea Mandaluniz Astigarraga**
21	Fruit quality of two tomato cultivars irrigated with reclaimed urban water	**María Remedios Romero-Aranda**
22	Antioxidant compounds and mineral content of mango fruits developed in two geographic scenarios: effects of rootstock and harvest time	**María Remedios Romero-Aranda**
23	Yeast and their uses like fining agent in white wines	**Belén Urbano Barranco**
24	Formulation optimization of fruit added cakes: physicochemical and sensory study	**Ines Ellouze**
25	Understanding the effect of relative humidity on crystalline fraction of sucrose through Time Domain (TD) NMR experiments	**Selen Guner**

26	Morphological changes in *E. coli* induced by high concentrations of sodium benzoate and potassium sorbate	**Norma Angélica Santiesteban López and Teresa Gladys Cerón Carrillo**
27	Prebiotic effect of yeast bread added with dried prickle pear cactus	**Norma Angélica Santiesteban López and Teresa Gladys Cerón Carrillo**

VIRTUAL PRESENTATIONS

(available at the online platform on the conference website from 2 to 9 November)

Title	Presenter(s)
The use of probiotics for improving functionality of chocolate - a review	**Dimitrios Kafetzopoulos**
The biochemical properties of salmonella and its presence in poultry flocks as an indicator of food safety	**Ioannis Deligiorgis**
Lactic acid bacteria from whey and milk cheese from an Asturian farm	**María Concepción De La Cruz Leyva**
Cucumis metuliferus fruit extract for the development of LDPE/cellulose acetate bilayer antioxidant packaging films	**Marina Patricia Arrieta Dillon**

Overcoming the limitations to identify *Dekkera bruxellensis* in wine environment: performance and specificity evaluation of two specie-specific RNA-FISH probes

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Several yeast species, not always beneficial ones, are involved in the winemaking process. Nowadays, *Dekkera bruxellensis* is considered the main cause of wine spoilage because it produces phenolic off-odours and off-flavours that render the products unacceptable [1]. Therefore, to prevent large economic losses for the wine industry, it is crucial to detect and identify in a fast and accurate way *D. bruxellensis* before degradation of wine occurs. The existing analytical methods based on the use of selective media or Polymerase Chain Reaction (PCR) take from 2 days to 3 weeks. RNA-Fluorescence *In Situ* Hybridisation (RNA-FISH) allows the detection and identification of microorganisms in complex matrices in few hours being considered as one of the most powerful techniques for various applications in microbiology [2]. Thus, it has the analytical potential for allowing specific detection of *D. bruxellensis*. However, some experimental difficulties can hamper its successful application such as: a) the autofluorescence of the sample and its interference with the RNA-FISH probe-conferred fluorescence, and b) the lack of probes with the desired levels of specificity and FISH performance. This is why this study was focused on overcoming the possible experimental drawbacks that can be found in RNA-FISH application for detecting *D. bruxellensis* in the wine environment and on evaluating the performance and specificity (both *in silico* and experimentally) of two RNA-FISH probes targeting to *D. bruxellensis*: a novel probe designed by us, L-S-Dkb271-a-A-17, Dkb271, and a probe previously designed by other authors, 26S D. brux.5.1 [3]. To achieve this goal, first, the interference of the matrix and cells autofluorescence as well as the influence of using three red-emitting fluorophores (AF647, Cy5 and ATTO 647N) as tags of the RNA-FISH probes on the suitability of RNA-FISH for detecting specific microorganisms in the wine environment were investigated. Afterwards, the performance and specificity of the two RNA-FISH probes targeting to *D. bruxellensis* were evaluated both *in silico* and experimentally. *In silico* evaluation was performed by analysing the fulfilment of the conditions for being potential RNA-FISH probes as well as their specificity, and theoretical hybridisation efficiency [4,5]. Their experimental evaluation was done by: a) constructing the fluorescence-signal-response/formamide concentration (FI /[FA]) curves for the target and a non-target yeast (*Candida krusei*) and by b) measuring by flow cytometry the percentage of cells that become fluorescent and their fluorescence intensities after RNA-FISH treatment of 16 wine microorganisms (12 yeasts -10 non-target and 2 target- and 4 bacteria).

The results showed that to apply RNA-FISH technique in the wine environment, a red-emitting fluorophore that allows to obtain detectable FISH specific signals while avoiding the background and cells autofluorescence interference, such as ATTO 647N, should be used. The *in silico* analyses revealed that the Dkb271 probe possess a higher specificity and theoretical hybridization efficiency than the 26S D. brux.5.1 probe. They are in accordance with the experimental results obtained after application of an RNA-FISH in-suspension protocol previously developed in our research group [6]. Using Dkb271 probe the best outcomes (*i.e.* the maximal % of hybridised *D. bruxellensis* cells showing the highest fluorescence intensities as well as the lowest % of hybridised non-target cells with extremely low fluorescence intensities) were achieved with 5% of [FA] whereas with 26S D. brux.5.1 probe they were only accomplished with 25% of [FA] (FA is a carcinogenic substance and therefore its utilisation in high concentrations must be avoided). Thus, this study allowed to overcome the limitations of RNA-FISH to identify *D. bruxellensis* in wine environment by using: a) specie-specific RNA-FISH probes targeting to *D. bruxellensis* labelled with a red-emitting fluorophore with high photostability: ATTO 647N; and b) a novel RNA-FISH probe with high performance and specificity to the target organism with low FA requirements. This study is a step forward to facilitate the detection and identification of *D. bruxellensis* in wine environment by turning it simple and fast. Thus, this will contribute to the wine industry quality control and to the reduction of the economic losses in this industry.

Keywords: *Dekkera bruxellensis*, Fluorescence *In Situ* Hybridisation, RNA-FISH probes, wine spoilage microorganisms.

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References

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[3] Röder et al. (2007). FEMS Yeast Res; **6**:1013–1026.
[4] Altschul et al. (1990). J Mol Biol; **215**:403-410.
[5] Kibbe, W.A. (2007). Nucleic Acids Res; **35** (webserver issue) W43–W46.
[6] González-Pérez, M. et al. (2017). Appl. Phys. A **123**:142.