safefood

Queen's University Belfast

# OUR FOOD IS OUR FUTURE

# FOOD INTEGRITY & TRACEABILITY CONFERENCE

ASSET 2014

QUEEN'S UNIVERSITY BELFAST 8TH–10TH APRIL

# CONFERENCE PROGRAMME & ABSTRACTS

be safe. be healthy. be well

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Queen's University Belfast

## The Institute for Global Food Security

Queen's University Belfast has a proud academic tradition stretching back over 160 years from its establishment by Queen Victoria in 1845 as one of the three Queen's colleges in Ireland. It received its Royal Charter from King Edward VII in 1908, becoming an independent university in its own right.

Throughout the 20th century, Queen's has continued to expand and develop. It has become one of the most respected universities in the British Isles, and its research tradition has gained it an international reputation. Queen's was accepted to join the elite Russell Group of UK universities committed to maintaining the highest standards of research, education and knowledge transfer.

The Institute for Global Food Security based at Queen's University Belfast conducts cutting edge research, developing robust techniques to safeguard the food supply. Working with colleagues across the globe, the institute aims to play an important role in delivering food security, not only locally but on a global scale, to provide the world's growing population with a sustainable, safe and secure supply of high quality food.

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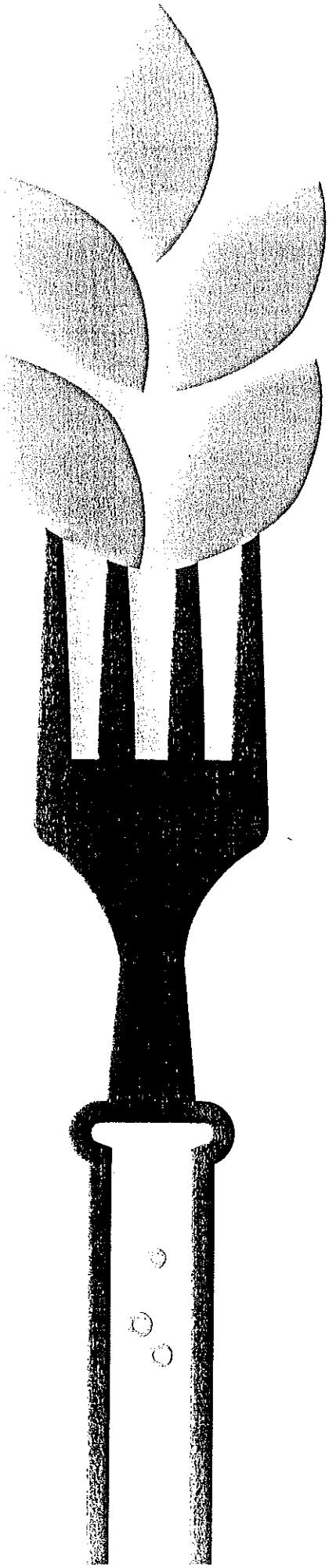
## safefood

***safefood*** is the all-island consumer body established in 1999 to promote best practice in food safety and healthy eating across the food chain in the Island of Ireland. ***safefood*** provides independent research, delivers consumer campaigns and collaborates with partners to contribute towards public health and well-being.

In 2011, ***safefood*** established seven new Knowledge Networks that are creating linkages between food safety professionals on the island of Ireland. The Networks are a forum for knowledge and information exchange on specific mircobiological and chemical food safety topics. The networks foster interaction and collaboration, and assist professionals within the food sector meet new and emerging challenges with an overall aim of ensuring that consumers can continue to have confidence in the food that they eat.



# POSTER PRESENTATIONS

# ABSTRACTS

POSTER 33

## The Process of drying apples by microwaves and evaluation of drying rate

Name: Mr Banu Yokus

Institution: Bilecik Åžeyh Edebali University

Co-author: Alev Akpinar Borazan

Drying rate is affected by many factors such as the size, composition, structure, and the amount of food to be dried. Drying rate can be accelerated by analyzing the effect of constant and variable conditions on the dehydration of the raw material. The purpose of this work was to analyze the process of drying of apples by MW. The effect of apple species, presence of skin and concentration ratio of the dip solution on the drying rate was studied. Drying steps were respectively; a. supplied two different apple species (Starking delicious, Lutz golden), b. cleaned and cored, c. pared of apples (applied just for skinless samples in each apple species), d. cut in slices 6 mm thick, e. soaked into $K_2CO_3$ solution (3% w/v) for 1min., f. soaked in dipping mixture of ascorbic acid (0.3% w/v) and citric acid (0.1% w/v) solution for 5minutes (by 2 different alternative ratio of 1:3 and 1:6), control samples were untreated. g. Pretreated apples were removed from solution. h. Dried apple slices in MW (350watt). The drying rates of apples dehydrated with pretreated in dipping solution were higher than the drying rates of untreated apples. The differences in drying rates were small for the apple species. The rates of water removal for the sample without skin, especially pretreated apples were better than the others. Consequently, the microwave drying technique can reduce drying time and produce a high quality end-product upto process conditions so as to offer a promising alternative and significant contribution to the apple.

POSTER 34

## Authenticity of DDGS - Botanical and geographical origin classification by Near Infrared Microscopy

Name: Dr Christoph von Holst

Institution: European Commission, DG Joint Research Centre, Institute for Reference Materials and Measurements

Co-authors: Noelia Tena, Ana Boix

One of the recently more often used feed materials are distillers dried grains with solubles (DDGS), which are by-products from ethanol production, easier for the food sector or for technical applications (bio-ethanol production). The nutritional value of these new feed materials is due to their high content of proteins and fiber. In order to guarantee the safe use of DDGS in animal nutrition, full traceability is quite important. In the ideal case, traceability of feed materials in respect of graphical and botanical origin and can be analysed by using rapid methods, preferably even applicable on-site, e.g. a feed mill. In this poster the authors present recent results obtained with Near Infrared Microscopy, applied on different DDGS test materials. The work has been conducted within the frame of the FP 7 project "QSAFFE".

POSTER 40 (CONT.)

geographic origin of Christmas trees (Nordmann fir) to protect the local Christmas tree market from wrongly declared foreign trees.

Tests have been carried out on the suitability of different parts of the fir tree for elemental fingerprinting. Inductively coupled plasma mass spectrometry (ICP-MS) was used to determine trace element concentrations after complete acid digestion in a high pressure asher (HPA-S).

Three fir trees from the same locality were investigated extensively. Needle samples from each year of life of the tree and stem wood from different heights were analyzed for their trace element content to prove their repeatability and to find the best sampling protocol.

For the analysis of the needles, the natural wax coating had to be removed in order to get reproducible results. For the analysis of stem wood the bark was removed.

Both needles and wood proved to be suitable for successful fingerprinting, provided that materials of the same age were compared. Subsequently analyses were carried out on Austrian, Danish and Irish Christmas trees. Wood and needles of the same age were both analyzed directly with a portable XRF Analyzer and conventionally after a complete digestion and with ICP-MS. The analytes relevant for classification were identified for both methods and appropriate statistical analysis methods were applied.

Results for the successful discrimination between local (Austrian) and foreign (Danish, Irish) Christmas trees will be presented.

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POSTER 41

## Commercial Apple Juices with a Controlled Phenolic Content and Antioxidant Capacity

Name: Mr Ecem Muge Andoglu
Institution: Bilecik Seyh Edebali University
Co-author: Alev Akpinar Borazan

Recently, trends in food industry lead to the production of functional foods enriched with biologically active compounds beneficial to human health. Apple juices are notable example of functional foods that may be eroded in value by dilution or adulteration with lower value products. The apple is known as a source of polyphenolic antioxidants and is the subject of investigation for potential anti-cancer properties and its effects on the cardiovascular and immune systems. Food control is a mandatory regulatory activity through which national or local authorities protect consumers and ensure that, during handling, storage, processing and distribution, all foods are safe, wholesome and fit for human consumption, meet quality and safety requirements, and are honestly and accurately labelled as prescribed by law. It was aimed in this study to evaluate total phenolic contents and the antioxidant activity in commercial apple juices, secondarily aim was to compare the total antioxidant capacities of juices obtained from 12 different trademark commercial apple juices which sold in Turkey. All apple juices obtained from market were extracted with methanol solution (80%v/v) by using ultrasound. Centrifugation, microfiltration were applied to preparation phenolic extracts. Obtained total phenolic contents of juice extract were determined by Folin-Cioacalteu method, antioxidant activities were tested using 1,1-diphenyl-2-picrylhydrazyl (DPPH)-scavenging activity. Total phenolic content of commercial apple juices varied between 317.77Â±15.70 and 642.71Â±2.67 GAE mg/L. Antioxidant activities of samples, indicated by IC50 values, ranged between 129.28 Â± 0.69 and 246.32Â±3.65Î¼g/ml. The phenolic and antioxidant contents of the tested apple juices showed significant changes depending on the trademark.

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Dear Alev Akpinar Borazan

On behalf of the Conference Organising Committees, I would like to congratulate you for your successful poster abstract submission for the 2nd Food Integrity and Traceability Conference (ASSET 2014) to be held at Queen's University Belfast, 6 - 11 April 2014.

This is the second such conference to be held at the University, and will focus on developments since ASSET 2011; the three key themes are as follows:

- Current and emerging threats to the integrity of the agri-food supply;
- Recent progress in delivering safe and authentic food to the consumer;
- New analytical means of verifying the integrity of the agri-food supply chain.

We have developed an exciting conference programme; a balance of science together with its practical application within the agri-food sector plus some innovative conference sessions. Delegates, representing industry, science and policy makers from across the globe, will hear first-hand of key developments toward providing the world's growing population with a sustainable, safe and secure supply of high quality food.

We are very much looking forward to welcoming you to the conference and to your poster entitled "The Process of Drying Apples by Microwaves and Evaluation of Drying Rate"

Kind regards,

Mr Michael Hills
ASSET2014 Organising Committee

Institute for
Global Food Security

Queen's University Belfast

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# CERTIFICATE OF ATTENDANCE

This is to certify

## *Ecem Müge Andoglu*

from *Bilecik Şeyh Edebali University*

Attended 2nd Food Integrity and Traceability Conference (ASSET 2014)

at Queen's University Belfast, 8 – 10 April 2014

Professor Christopher Elliot
Director of the Institute for Global Food Security
Queen's University Belfast

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