

e-Newsletter: Ensuring the Integrity of the European food chain

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Welcome to the fifth FoodIntegrity Newsletter.

Since you received the last Newsletter in December 2016, a lot has happened in the FoodIntegrity Project. Some of the Work Packages have been wound-up, while the new WPs that came on board during last year are now in full swing.

Paul Brereton and his colleagues at Fera Science were engaged with chasing WP leaders for reporting and accounting, and the preparation of the Parma annual conference kept everybody busy.

The Parma conference that was prepared under the leadership of Michele Suman, Barilla together with Elena Maestri, University of Parma and Monika Tomaniova, University of Chemistry and Technology Prague, and naturally Fera Science, was the highlight of this year's activities; read more below. I must express my and the gratitude of all participants for the outstanding organisation, the scientific excellence of the programme as well as the 'fun part', that went well into the night.

But even before the conference was inaugurated, internal WP meetings took place followed by the full meeting of the FoodIntegrity Project, including short presentations of all WP's status including results. The Research Programme Officer, Alexandra Tuijtelars, of the European Commission was present during the meeting and the conference, underlining the Project's high standing.

Enjoy reading and have a nice summer!

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Guest Editor

FoodIntegrity Conference: Parma, Italy 10-11 May 2017

'Assuring the Integrity of the food chain: Turning science into solutions' was the perfect title for the 2017 FoodIntegrity Conference in Parma, and the conference delivered. Conference organisers together with conference committees, supported by the FoodIntegrity Project coordination from Fera Science offered a seamless framework and programme to advance discussion and practical applications furthering food integrity. With about 350 participants from all sectors of science, industry and organisations, the conference grew impressively compared to the 2016 Prague conference confirming the growing importance of food integrity for protecting consumers from fraud and adulterated food.

The opening and morning sessions invited participants to broaden the view from their particular research and work topics to presentations about food authenticity (EFSA, Parma), QM-systems against food fraud (IFS, Berlin) and intellectual property aspects (IPO, Newport) and economic aspects (MIPAFF, Rome) setting the stage for 'New Solutions for Identifying Emerging Risks' presented by FoodIntegrity Project Work Package participants.



When listening to Federico Pizzarotti, the Mayor of Parma, who opened the conference and praised the long history and today's food culture of Parma, the excellence of food and its regional artisanal provenience, my mouth watered – the real food offered during the evening underlined his comments. My thoughts drifted to the regular consumers, whom this project is working to protect and who are in the dark about the many frauds ongoing in the world today. On another note, the use of social media for preventing food

infection outbreaks and the work on big data algorithms for detecting fraud even before it happens was enlightening. After intense discussions that we had for our Work Package with Food Criminologists, I have some doubts whether the erratic and spontaneous 'grab the opportunity' nature of fraud can be detected with such tools, though I do hope to be proven wrong.

The two afternoon parallel sessions of the first day focused on 'Rapid & Confirmatory analytical solutions' with presentations of latest scientific and technical solutions and with a 'Workshop on Good risk management requirements, trust in label claims & best practices'. The Workshop was a very lively and participatory experience – an excellent setting for engaging participants. This Workshop deepened the themes of economic significance and importance of label claims (the examples chosen were PDO/ PGI and organic foods), and how to best promote trust in premium products. The two sessions stressed the importance and necessity of looking at food integrity from a systems' as well as from a testing perspective.

As I was invited to give a short presentation about how the Italian organic sector is building integrity by fighting fraud in cereal supply chains (after having been hit by a number of serious scandals with selling non-organic grain as organic), I could not attend the session on Analytics. My workshop on organic and PDO/ PGI, which I was part of the moderation team was inspiring. I am always impressed to see to what extent the still very, very small organic and PDO/ PGI food sector has already impacted thinking and strategizing. The attitude by participants of the workshop to analyse and transfer the systematic approach of 'standard – inspection – certification – transparency' to the food sector at large and as an anti-fraud tool was motivating.

The afternoon was rounded off with 'Fast Science' speed presentations, a challenge for presenters as time was limited for presenting complex topics. The format engaged the audience who saw some impressive innovative presentations, excellent for a speedy overview and later follow-up with presenters. Before closing off the day 6 young food integrity scientists presented their research results and were awarded, fervently applauded by the audience for both, the results of their work but also for their professional, outstanding presentations.



FI Conference, Parma photos (left to right): Young FoodIntegrity Scientists Winners, Parma Conference Organising Committee, Evening Dinner Entertainment – Operas by Giuseppe Verdi.

The second day started off with two parallel sessions on 'Food Integrity 2020 Challenges – Unresolved and Emerging gaps' and 'Consumer issues: quality vs convenience – satisfying consumer needs'. With these two topics, the FoodIntegrity Project and the Organising Committee underlined the strategy of embracing all aspects of food integrity, looking beyond the already known and to addressing the expectations of the target group: the consumer!

Participating in 'Consumer Issues' I found yet another time that the special attention the Italian "Carabinieri NAS" is paying to food adulteration and fraud is of special performance across the EU. The balance between the necessary pungency in its activities and the realistic view on what can be achieved were presented well.

The last session of the conference centred on the 'Forward Look' and presented inspiring perspectives of more general nature, while at the same time being concrete: "we need a global definition of what is food integrity", "we need to be realistic about what can be applied in practice and how we can finance the wished actions".

The closing session was one of my highlights with presentations about the 'global perspective', 'EU challenges' and 'how much is enough' in analytics. When listening to presentations during the conference I was tempted to believe that the paradigm for fighting adulteration and fraud is in testing and analytics; this impression was laudably corrected by the speakers pointing the audience to testing and analytics as important and useful tools, when highlighting the systematic and structural approach as the necessary and most important.



Finally, before being round up by the Chair of the Conference Michele Suman (Barilla), the focus turned to the poster presentations that were displayed parallel to the conference. Three posters were presented with an award.

Find links to the conference below.

USEFUL LINKS:



Visit the conference website for more: <http://foodintegrity2017-parma.eu/>

Book of Abstracts can be downloaded [HERE](#).

Final FoodIntegrity 2017 programme can be viewed [HERE](#).

FoodIntegrity Project Results:

Knowledge Base (WP2), by Jean-Francois Morin

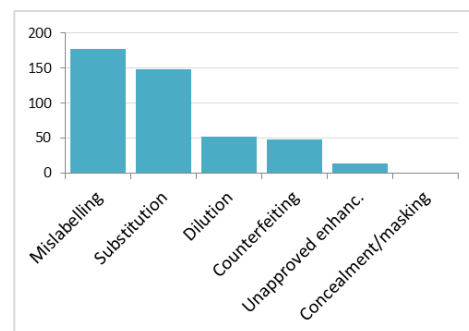
The aim of WP2 is to build a **comprehensive Knowledge Base (KB)** linking each food product and its potential fraud or integrity issues, to appropriate analytical strategies that can be used for food fraud detection or authenticity testing.

Up to now **more than 300 methods** have been put in the KB by experts of WP2 in relation to various food fraud issues (cf. Figure). A data quality check is ongoing for assuring harmonisation and relevance of data.

Furthermore, a **beta-test involving more than 20 stakeholders**, from control laboratories, food companies, professional associations and policy making bodies has been organised for getting feedback. A set of interesting comments have been collected and improvements of the IT tools are under development.

The question of the sustainability of the KB beyond the project has also been addressed. A **transfer project of the KB to the JRC**, expected early 2018, is under discussion. **Freely accessible**, the KB will be a knowledge reference in the field of food fraud. It will be used by food companies, in the case where they are facing an adulteration, for identifying analytical solutions for testing samples. It can also be used for preparing a control plan tailored to its needs and relevant for the food matrices or even for standardisation bodies to evaluate the status of validation of analytical methods efficient for a specific food fraud issue and select candidate method(s) for standardisation.

Including comprehensive and standardised metadata for the description of the method, the KB will act as a **European focal point** about analytical methods in the field of food fraud.



Misdescription incidents in European mass caterer (WP6), by Miguel Angel Pardo

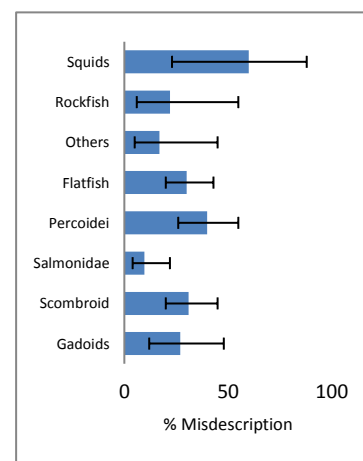
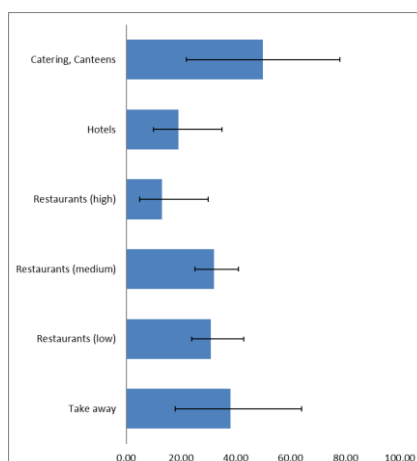
The investigation into fish products has focused mainly on four countries: Iceland (main fish exporter); Norway (main farmed fish and fishing exporter); Spain (main importer of fish products in Europe and also a great exporter) and UK (one of the main importers of fish products in Europe).

AZTI technology centre, which specialises in methodologies to ensure the authenticity and origin of raw materials and ingredients, has led the work group, together with the Icelandic Matis Institute, to analyse adulteration and mislabelling on fish products.

The group analysed misdescription incidents in European restaurants. The survey was focused on HORECA sector (restaurants, hotels, catering, self-services, bar, pub, take away, etc.) all over Europe. AZTI and MATIS have collected 282 samples from 179 restaurants in 23 European countries. The main objective of this survey is to elucidate the % of restaurants serving fish that does not fit which is detailed in the menu. This method combined with a citizen science approach will lead industry to self-regulation.

MAIN RESULTS

- / 32% ($\pm 7\%$) of restaurants served mislabeled fish in the menu.
- / The rate of mislabeling does not differ significantly between species except following cases:
 - / 50% mislabeling of sole
 - / 58% mislabeling of red tuna
 - / 27% mislabeling of cod
- / The higher % of fish mislabeling was detected in caterings, canteens and take away restaurants.
- / 72% ($\pm 9\%$) of mislabeled fish samples were substituted with cheaper fish species with an economical motivation.



Chinese Consumer Study (WP7), by Lynn J. Frewer

The international group led by Prof Lynn Frewer from Newcastle University undertook the two-year study looking at **Chinese consumer attitudes to European food products**. The study involved 6 focus groups of Chinese consumers informing on the concerns held by Chinese consumers in relation to food safety and authenticity. The results were then used to compile a survey of 850 participants.

Our research indicates that Chinese consumers are increasingly concerned about food safety and Chinese media reports associated with food safety issues have increased over the last decade. Our research has identified Chinese consumer expectations, attitudes and preferences with regard to selected European products in terms of food authenticity, integrity and traceability.

Qualitative methodologies were initially used to explore Chinese consumer's awareness of, and attitudes towards, food fraud. The results, together with insights from the literature, were used to develop a **quantitative survey**, which permitted hypotheses established in the focus group stage to be tested.

The influence of geographical location and product type on attitude and purchase intention were also explored. Three product categories, infant milk formula Scotch whisky, and olive oil presented different examples of potentially fraudulent products. Seven focus groups with more affluent consumers were held in Beijing, Guangzhou and Chengdu.

The results suggest that food fraud was associated with expressions of anxiety and concern relating to the safety of food available to the Chinese consumer in the domestic market, and was associated with a lack of trust in the motives of industry and the abilities of the authorities to protect the interests of consumers with regard to food safety, the latter being exacerbated by the complexity of the food chain.

The results were used to design a survey instrument, which was administered to 850 participants resident in the same cities. **The results indicate that the more concerned consumers were about food safety, the stronger was their perception of the risks posed by adulterated food.** Study participants were also more positive about the role that authenticity testing had in protecting consumers, and they expressed a higher level of intention to purchase authenticated food and drink products. Furthermore, Chinese consumers were unable to disassociate incidents of economically motivated adulteration from food safety risks that, by implication, present potential health hazards. While authenticity cues present reassurances about the authenticity of (European) products, it is important that manufacturers ensure packaging measures are updated in advance potentially fraudulent activities.

As well as research papers being submitted to journals, we have produced an information leaflet for industry stakeholders and other interested end-users.

Dissemination activities:

New FoodIntegrity Publication:

Barbara Prandi, Francesca Lambertini, Andrea Faccini, Michele Suman, Andrea Leporati, Tullia Tedeschi, Stefano Sforza: [Mass spectrometry quantification of beef and pork meat in highly processed food: Application on Bolognese sauce](#). Food Control 74 (2017) 61-69.

1st Scientific Opinion published:

Federica Camin, Markus Boner, Luana Bontempo, Carsten Fauhl-Hassek, Simon D. Kelly, Janet Riedl, Andreas Rossmann: [Stable isotope techniques for verifying the declared geographical origin of food in legal cases](#). Trends in Food Science & Technology 61 (2017) 176-187.

Conferences:



[China International Food Safety & Quality Conference – Shanghai, China: November 2016](#)



[FOOD FRAUD - Global Understanding 2017 – Quebec City, Canada: April 2017](#)

Media:

FoodIntegrity TV and Press coverage can be found by visiting the following page: <http://foodintegrity2017-parma.eu/press/>

New Food Magazine's FoodIntegrity 2017 Roundtable: <https://www.newfoodmagazine.com/news/41637/food-integrity-2017-roundtable/>

Training activities:

For the efficient knowledge transfer of developed technologies and other information generated within the project framework, training network has been established, consisting of a comprehensive training program, a young scientist mobility program, establishing a training school, and the organisation of a series of workshops.

The training program will be launched soon. If you wish to be informed on opportunities offered by the training program, please register for the project COMMUNICATION [here](#).

How to get involved?



There are many different ways by which you can get involved with the project and keep up to date with news, events and activities, so don't hesitate to visit our web site at www.FoodIntegrity.eu or sign up as an expert or stakeholder in the *FoodIntegrity Network*



[Register for project communications.](#)



[Please click here to register to be a part of the FoodIntegrity Network.](#)



Follow FoodIntegrity on [Twitter](#) or join the Network Group on [LinkedIn](#).

Dates for diary:



FoodIntegrity Associated events:

[8th International Symposium on Recent Advances in Food Analysis \(RAFA 2017\)](#)

7-10 November 2017, Prague, Czech Republic

[Belfast Summit on Global Food Integrity \(ASSET 2018\)](#)

29-31 May 2018, Belfast, Northern Ireland, UK

External events:

[EuroAnalysis](#)

28 August-1 September 2017, Stockholm, Sweden

[EUROFOODCHEM XIX](#)

4-6 October 2017, Budapest, Hungary

[5th MS Food Day – International Conference of Mass Spectrometry Applications in AgriFood Sector](#)

11-13 October 2017, Bologna, Italy

[China International Food Safety & Quality Conference](#)

1-2 November 2017, Beijing, China

We hope you have found this e-Newsletter interesting and informative. We would welcome your views on any of the issues covered. Please email foodintegrity@fera.co.uk. Please feel free to distribute this FoodIntegrity e-Newsletter to other interested parties.

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