FoodTraNet Newsletter 1: August 2022

Unbelievably, the FoodTraNet project is now over a year old. However, the team has been very busy during this time. In this newsletter we will describe some of the project's key achievements, technical highlights, insights from our Early Stage Researchers (ESRs), and events and training.

1: A Word from the Management

CREATING THE FOODTRANET PLATFORM

In May 2021 the project website was launched www.foodtranet.org. This was in combination with a fresh branding image and various templates to support project reports and presentations.

Initially the website was the primary portal to apply for one of the 15 ESR positions (see below). To facilitate this, the website described the details of the FoodTraNet project, the project team, and events and training. This has now been updated with the profiles of the ESRs and news and dissemination pages. More recently, a "blog spot" has been created for the ESRs to share their experiences as they progress through their PhDs. The website will also soon be linked to the Project SharePoint where project specific information can be accessed (through password protected login). The website integrates with Twitter, LinkedIn, and YouTube pages for technical updates and event notifications. Moreover, in order to allow the ESRs to share a more personal experience of their training and research, an Instagram page (@foodtranet) has also been created, which is maintained by two of the ESRs.

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ESR RECRUITMENT

An advertisement was put out through the website to recruit the 15 Early-Stage Researcher positions, for which we received over four hundred applications. After a comprehensive selection and interview process, 15 exceptional candidates were selected from a diverse range of locations around the world who possess excellent academic qualifications combined with a passion for food-related technologies.

PROJECT KICK-OFF MEEETING

Between 9-10 December 2021, the kick-off meeting for the FoodTraNet team was held virtually due to on-going covid social and travel restrictions. Despite this, all the ESRs, partners, and supervisors had the chance to meet each other for the first time and introduce themselves.

Chaired by the project Coordinator, Prof. Nives Ogrinc, presentations from each of the Work Package leads and from each of the ESRs were given. You can view the individual ESR presentations on our YouTube channel here or on the ESR Profile page.

2: Updates from our ESRs

In this newsletter we have gathered the experiences of some of ESRs regarding moving to and studying in a new country.

Cathrine Terro (ESR 6): Slovenia

I love travelling; I have already discovered more than 20 countries in and out of Europe and have lived in 4 countries. I enjoy travelling around since I get to learn about new cultures and traditions and meet people from all over the world.

When I visited Slovenia, I fell in love with the beauty of Ljubljana and the magical city center. The main challenge is the language where it was a bit hard to know what you are buying at the shops or restaurants. But since almost everyone knows English, Ljubljana is a great place to be in if you don't know the language. Despite that, I decided to take a beginners slovenian language course which may come in handy outside of the central cities. The work environment is great where I enjoy the diversity of where I work, and I get to learn a lot from my colleagues and collaborate with them and vice versa.

Before arriving to Ljubljana, I already started with taking the required courses and i decided to apply to be in the student council in Jozef Stefan International Postgraduate School (JSI). It was a success and so I got elected to be part of the student council which serves as the students' representative body and initiates and also directs student activities, shares students' ideas

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concerns, and interests. Later, I joined the organizing comittee as a communications team leader for the 14th Jožef Stefan International Postgraduate School Students' Conference (IPSSC).

Moving to another country where you hardly know anyone could be challenging, so joining the student council made it easier to start interacting and making friends and learning about the culture of the new country that you are in. When in Slovenia, try to visit its museums like the Narodni museum, and the modern art museum, visiting lakes such as lake Bled, and lake Bohinj, and parks like park Tivoli in the center and the Ljubljana castle. The must try foods are štruklji, potica, and carniola sausages. Other activities I have undertaken include hiking in several national parks, mountains and the beautiful caves that Slovenia offers.

Harshit Sahai (ESR 7): Spain

I've always enjoyed traveling and had been living on my own for a few years, but this was a significant change in my life. I relocated to Spain for this project, and the first few days were difficult. When I arrived in Madrid, I immediately started working, but I also had to deal with a lot of administrative and documentation work, which was a bit stressful. I've been extremely lucky to be surrounded by colleagues and mentors who have assisted me in not just my work but also in adjusting to this new environment and culture. People in Spain are quite friendly and hospitable, and I had no trouble mingling and interacting with them.

Spain is a beautiful country full of art, history and culture. I experienced the celebrations during the Semana Santa and was mesmerized by the traditional processions and deep sentiment that it carries. Also, you can never go wrong with Spanish food whether be it tortilla de patatas, chorizo, cocido or paella. It's always a good time to have some beer and tapas here and "siesta" is an important part of life.

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I recommend travelling to different regions of Spain and not just the touristy cities like Madrid or Barcelona. Cities like Santiago de Compostela and Granada are a must-visit. It's always good to find friends that are locals here and explore the local culture. I would definitely love to work here in future as well.

Alicia Macan Schonleben (ESR 9): Belgium

I have always loved to travel and getting to know new countries and cultures, and I think you get an even better idea of the life of the people if you actually live and work in the country. So I was very excited about this chance to not only live in Belgium, but also have the possibility to experience life in Greece, the UK and Slovenia, where my secondments will take place.

My first days in this new country where quite overwhelming. You wouldn't think that there are big differences between Germany and Belgium, but trust me, there are! For example, the bike frequency in Antwerp is much higher than in my hometown, even though the cities are about the same size. I was very close to being run over by a bike the first couple of days I was here. After having resisted for two weeks, the Belgian public transport finally wore me down and I am now also one of these bikers (or fietser, as the Flemish say). Another difference is the food, by combining frituur/snack bars with French patisseries and waffles the Belgians really created an amazing (though quite unhealthy) food mecca. You definitely have to try a Belgian waffle and the fries.

As always when moving to a different country, the administrative obstacles you face were quite abundant. Especially when applying for a national registration number in Belgium. After months of application processes, I am the proud owner of a rijksregisternummer and could therefore finally start my life here. I am sure that this process would not have been possible without the

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help of the university and the support of my colleagues here. I am very happy I ended up in this group. We are quite a lot of people, but somehow we make it work.

All in all, I am having the best time in Antwerp. I am loving the food, the beers, and the music. I can only recommend a visit here, especially in the summer months, where you can really enjoy the vibe of the city on one of the many terraces.

Lidia Millán (ESR 14): The Netherlands

It was one of my dreams to live abroad. Participating in Foodtranet, not only gave me the chance to pursue my dreams but also to do what I love: science. I arrived in the Netherlands in October 2021 to start my PhD in microplastics in fish and seafood. At the beginning, I was scared since I was moving to a new country, facing a new professional challenge and being far from my friends and family. However, as soon as I arrived, I felt very welcome by my colleagues at M4i. I have to admit that I'm not passionate about Dutch weather and cuisine, but Maastricht has nice things to offer:

- Maastricht is a very cozy city near Belgium, Germany and Luxembourg. Its location is ideal for travel lovers, since in a few hours you can be in a new destination .
- International environment: People all over the globe are living in Maastricht, so it's easy to make new friends and learn about new cultures. Locals are helpful and kind, but be careful with the Dutch directness!
- Koningsdag: Also known in English as 'the Kings day' is one of the biggest festivities in the NL. People, in their orange clothes (in honour to the royal family), go out to the streets to celebrate this national day. It takes place the 27th of April, save the date in your agenda.

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Nayyer Rehman (ESR 15) : United Kingdom

Coming to a new country has always been both exciting and challenging for me. From sorting out banking issues to finding a place that feels like home, the first few days are always crazy. I felt the same way about London when I first came to this city known for its diversity of cultures, food, fashion and much more.

Perhaps the biggest challenge for me was dealing with the different trains that run in London. They are a mystery in themselves. They say you are a Londoner if you can find your way around the Tube without looking at a map - I still have a long way to go.

London has a variety of activities to offer for people of all tastes and preferences. Apart from the famous sights like Big Ben, Buckingham Palace, the Houses of Parliament, London Bridge, etc., I personally recommend a cruise on the Thames with an authentic Afternoon Tea.

The team at WRG has been very welcoming and supportive during my settling-in period. The flexible working environment is an added advantage. The work culture, the people, the food - everything makes me feel like I belong, so I can imagine staying here for a longer period of time.

Conferences by ESRs (attended/to be attended):

1. The 14th Jožef Stefan International Postgraduate School Students' Conference (IPSSC) by ESR 6: Cathrine Terro, ESR 10: Eirini Andreasidou, ESR 15: Nayyer Rehman (BOOK OF ABSTRACTS: http://ipssc.mps.si/Book_of_Abstracts.pdf). All three were also a part of the organizing committee for this conference. Further, they will also attend IMSC 2022 in Maastricht, NL.
2. ESR 3: Mudita Vats and ESR 14: Lidia Molina submitted Abstract in IMSC 2022 selected for poster and Poster submission in MSBM, summer school, Dubrovnik.
3. ESR 7: Harshit Sahai attended conference of 12th Micropol and Ecohazard conference 2022, at Santiago de Compostela, Spain. Date: June 6 to 10. Abstract title: Sorption behavior of contaminants in PE based microplastics.

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3: Technical Highlights

EXPERIMENTAL CHEESE!

ESR 2 Jonas Andersen, is investigating enhancing cheese to improve health benefits for consumers. Some cheeses have already been enriched with a variety of ingredients including grapes, green tea, fruit juice powder and other berries as well as by-products from grapes, tomatoes and various vegetables. The addition of these ingredients does indeed increase the polyphenol concentrations and the antioxidant activity in the cheeses. In his current project, Joans is attempting to enrich cheeses using berries with high concentration of polyphenols, namely blackcurrant, cornelian cherry and elderberry.

MICROPLASTICS IN WATER & REUSE IN CROPS

Harshit is currently working at the University of Almeria, Spain, to study the interactions between microplastics and pesticide residues in the agricultural ecosystem. From the preliminary findings, we see that the microplastics can act as carriers or vectors for the transport and accumulation of pesticides and other contaminants in the system. These interactions depend on the physico-chemical properties of the plastic particle, the properties of the contaminant as well as of the surrounding media in which the interactions take place.

Furthermore, the sorption of these contaminants seems to be higher in microplastic samples derived from commercial plastic films that are frequently used in agricultural processes such as mulching and are modified with various additives which impart structural and chemical stability to the plastic.

The future scope of the project involves the investigation into the effects of microplastics on crops grown in a media contaminated with these microplastics and possible implications for food safety and security.

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WHAT IS LA-REIMS?

It stands for Laser Assisted - Rapid Evaporative Ionization Mass Spectrometry. This technique works on the principle of shooting laser (CO_2 laser in this case) over the sample which release smoke or vapor that goes into the mass spectrometer through a tubing. The instrument has a Time-of-Flight analyzer for analyzing the ions. It is mainly able to detect lipids. Most mass spectrometry imaging techniques have a disadvantage of reduced signal intensities due to variation in the height of the sample. They additionally need sample preparation like sectioning which is not possible with every sample. However, with REIMS we do not face these challenges.

In food-based research, LA-REIMS has been used to analyze microbial spoilage, texture, toxicity, etc. in meat. I am studying the lipid profile of mushroom, which is popular for its flavour and nutritional benefits, using automated 3-D MS scanner demonstrating the advantage of using ambient ionization technique on uneven samples.

4: Training and Events

FoodTraNet Summer School:

The first of the three planned training schools occurred on June 22-24 2022.

Day 1: The summer school was held in Fondazione Edmund Mach in San Michele all'Adige in Trento, Italy under the title of "Advanced approaches for food quality, authenticity and traceability". It was the first summer school since the pandemic hit and constituted of 3 days of comprehensive lectures and relevant training courses. It commenced with a warm welcome from Prof. Pezzotti – Director of FEM Research and Innovation Centre and from Prof. Ogrinc - FoodTraNet coordinator.

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This was followed by a presentation about the concept of developing edible barcodes (Dr. Matjaž Humar, JSI), then a presentation about Mass Spectrometry Imaging (Prof. Ron Heeren, M4i), and Biostatistics and Data Management lecture (Dr. Pietro Franceschi, FEM). A training in sample preparation and traditional analytical procedures in stable isotope analysis was guided by Dr. Luana Bontempo (FEM) and introductions of biotechnology approaches for fermented food (cheese) innovation for food quality improvement was given by Dr. Elena Franciosi (FEM).

Day 2: The second day of the summer school started with a lecture by Prof. Paolo Guarda (UNITN) about copyright, open access and the importance of legal management of scientific research data in the digital age. This was followed by a short presentation by Prof. Maria Dolores Hernando (INIA) regarding target and non-target methods in food analysis and authentication and a lecture by Prof. Berta Cillero-Pastor (M4i) about Mass spectrometry imaging (MSI) and other spatial omics approaches.

The last part of this day was a comprehensive course by Prof. Gabe Bowen about the construction of isoscapes (isotope mapping) and Geographic Information Systems (GIS) modeling.

Day 3: This day included a field visit to the dairy-factory at Fondo and Trentingrana store at Segno guided by Dr. Nicola Cologna and Andrea Goss (CONCAST). The visit introduced us to the intricate techniques used in making and maintaining the Trentingrana which is an Italian Grana cheese that originates from Trento. This cheese is made from raw cow's milk from Trento and it ages for 22 months. The rind is thick and dark yellow in color, imprinted with the word Trentino on each wheel.

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Upcoming events:

1. August 26, 2022: Project midterm review at Maastricht, the Netherlands (to be attended by all ESRs).
2. August 27 - September 2: IMSC 2022 Maastricht, the Netherlands (not all ESRs) https://www.imsc2022.com/
3. Team building event in Slovenia: September 23-26 (All ESRs)

5: Food Facts: Did you know?

Food waste:

About 30 percent of all food produced is never eaten. The world produces enough food to feed all its human inhabitants, but the problem is distribution — the food doesn't always get to the people who need it. For example, just one U.S. family of four wastes 1,656 pounds (751 kilograms) of food every year [1].

Insects:

1. Your food is allowed to contain traces of insects: The FDA will only begin an investigation into foods once they go over the allowable levels they set. For example, chocolate would only ever be investigated once it reaches 60 or more insect fragments per 100 grams - anything below this level is considered ok. For peanut butter the level is set lower at 30 insect fragments per 100 grams.
2. The red food dye used in Skittles is made from boiled beetles. Carmine, also known as carminic acid, is a common red food dye that can be found in Skittles, maraschino cherries, raspberry and strawberry-flavored junk foods. Carminic acid also happens to be made from the crushed carcasses of a beetle known as the Dactylopius coccus.

Carrots were originally purple:

According to the National Carrot Museum in the UK, the first carrots looked nothing like they do today.

Originally these vegetables were purple or white with a thin root. The orange carrots we know and eat today are actually the result of a genetic mutation in the late 16th century that won out over the original color.

Sources:

[1] https://www.livescience.com/26199-amnh-food-show-facts.html

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