

COST Action FA1305
Training School 4
Microbia-ponics : Microbial roles and dynamics in aquaponics

The COST Action FA1305 Training School 4 on Microbia-ponics : Microbial roles and dynamics in aquaponics was held in Belgium April 25th to April 28th 2016.

There were 15 trainees from nine countries, one film maker from Greenwich and four trainers participating. The Training School was held in Gembloux, at the Gembloux Agro-bio Tech faculty of the University of Liège, where the participants met up the 24th of April.

On Monday 25th, Profs. Jijakli and Francis presented the program of the training school. After a quick introduction by each trainee and trainer, Prof. Jijakli made a presentation about the types of aquaponics systems, the aquaponics compartments and the roles played by micro-organisms in aquaponics. After lunch, Prof. Dapprich exposed the main plant pathogens found in aquaponics, as well as the diagnostic tools available to detect them. Prof. Massart ended the day talking about the use of high throughput sequencing techniques in the study of microbial population in aquaponics systems, as well as the advantages and drawbacks of such technologies.

Tuesday the 26th started by a practical course about diagnostic of plant diseases, given by Prof Dapprich assisted by Dr De Clerck and Ir Stouvenakers, as a follow up of the theoretical teaching made the day before. The trainers had the opportunity to make visual and microscopic observation of several pathogens commonly found in aquaponics (*B. cinerea* and *Pythium* among others). The aim was to make the participants capable to recognize symptoms and make the right observation in order to make a diagnostic. After a small break, Prof Massart took over with a discussion about the practical analysis of the NGS results.

After lunch, the PAFF (Plant and Fish Farming) Box and the RAS system of Gembloux Agro-bio Tech were visited. Prof. Jijakli then made a speech about biocontrol of plant pathogens and biostimulation, and about their compatibility and potential in aquaponics systems. The day ended in the lab for more microscopic observations of pathogenic agents.

On Wednesday, Prof. Gross talked about water and solid quality, treatment and reuse in aquaponics systems.

The theoretical teaching was followed by a practical application in the lab that lasted to the end of the day, aiming to demonstrate the methods for water and sludge analyses used in aquaculture.

The last day was devoted to the visit of two Belgian aquaponics systems. The participants went to Kruishoutem to meet Dr Beyers who bring them to see the PGC demonstrative aquaponics system, and then to AQUA4C, which is one of the most important commercial decoupled aquaponics system in Europe. The day ended by the visit of the exploitation of a tomato grower and a conclusion by Prof. Jijakli.

In the end, the outputs of this Training school were very positive and led to numerous discussions and connections between participants.