



Report on the EWRS & IWGC training on Weed genomics

The training workshop on weed genomics organised by the EWRS and the International Weed Genomics Consortium (IWGC) took place in Antalya (Turkey), from 26.02. - 02.03. The workshop was organised by Husrev Mennan as the EWRS Scientific Secretary and the chairs of three EWRS working groups Education & Training (Lena Ulber), Weed Management in Mediterranean Cropping Systems (Maor Matzrafi), and Herbicide Resistance (Roland Beffa) and was financially supported by the EWRS and the IWGC. The workshop included lectures on weed resistance (Roland Beffa), on weed population evolution (Maor Matzrafi), on weedy traits and genomic methods (Dana MacGregor, Rothamsted Research, UK) and training on basic genomic analyses and bioinformatics (Eric Patterson, Michigan State University, US).

The workshop was attended by 20 participants (mainly Ph.D. students and PostDocs) coming from 11 different countries. To cover their travel expenses, the EWRS provided travel grants to 14 students.

On the first day, Dana MacGregor talked about plant traits that define the “weediness” of a plant species and the stress response of plants at different growth stages. In addition, she gave a very illustrative overview of techniques for the extraction and analysis of DNA, RNA, proteins and metabolites. Her presentation is assessable here: <https://figshare.com/s/70b6a5bd2866d08cbbb8>

The second speaker was Roland Beffa from Germany (WG Herbicide Resistance) who presented how genomic approaches and techniques can be used to identify resistance mechanisms in herbicide-resistant weed species.

In the afternoon, Maor Matzrafi from Israel (WG Weed Management in Mediterranean Cropping Systems) gave an overview of the analysis of genetic diversity and population structure of weeds with a focus on invasive plant species.

The second day started with a presentation of Weedpedia by Koen Nijbroek, from the company Keygene based in the Netherlands. He provided an overview of the tools implemented in Weedpedia (<https://weedpedia.weedgenomics.org/>) for the analysis of weed genetic data.

After lunch, a field trip took the participants to the Bati Akdeniz Agricultural Research Institute for a tour through the new buildings of the Department of Plant Protection/Weed Science. In addition, the students had an opportunity to visit the greenhouse facilities and citrus orchards as well as the aromatic plants cultivation at the Research Institute. Then we enjoyed a visit to the old city center of Antalya.

On the third day, Eric Patterson provided an introduction to genomic data analysis and practiced coding with the students. In the afternoon, students were given a data set and practiced hands-on genomic data analysis using the software R.

The students very actively participated in the workshop and quickly established connections with each other that will hopefully last for the future. The aim of the workshop was not only to deliver knowledge and training but also to form a network of students and early career scientists working on similar topics related to weed genomics. We intend to organise a follow-up workshop to further discuss and explore the topics raised during this workshop. In addition, we will establish a platform for student communications in collaboration with EWRS and IWGC, this platform will encourage the students to stay in touch both among each other and with the workshop teachers and organisers to exchange ideas and discuss questions regarding their research.



