

NETWORK

3.5. Sugar, Starch and Fibre Crops Network

Working Groups: *Beta*; Fibre Crops (Flax and Hemp); Medicinal and Aromatic Plants (MAPs); Potato.

The **Sugar, Starch and Fibre Crops Network Coordinating Group** consisted of four members: Roel Hoekstra, The Netherlands (Network Coordinator); Lothar Frese, Germany; Martin Pavelek, Czech Republic; and Ana Maria Barata, Portugal.

The ECPGR-funded project on **inventory and sampling of *Origanum vulgare* L.** populations was completed by the Working Group on Medicinal and Aromatic Plants. Samples from 51 populations from 19 countries were analysed by the Institute of Applied Botany, University of Veterinary Medicine, Vienna, Austria. Genetic structure analysis has shown genetic radiation originating from a hotspot in the eastern Mediterranean area, with a gradient that could be observed from East to West but not from South to North. High essential oil content was detected especially from samples from Greece, Israel and Turkey and generally a high selection potential for maximizing essential oil content was shown to be available. Each population was assigned to a specific chemotype, based on its essential oil composition.

The project "An Integrated European *In Situ* Management Workplan: Implementing Genetic Reserve and On Farm Concepts (AEGRO)" funded through the GENRES programme EC 870/2004 (<http://aegro.jki.bund.de/aegro/>) helped the implementation of the workplan of the **Beta Working Group** agreed upon at its third meeting. The results of Workpackage 6 "Case study *Beta*" were published by CABI in 2011.¹ In addition a "*Beta patula* Aiton genetic reserve action plan" has been developed within the framework of WP6 and negotiated with the competent agency, the Natural Park of Madeira, which is going to establish the first genetic reserve for *Beta* in the EU. As a result of AEGRO Workpackage 10 "Documentation for genetic reserves management field work and ECCDB capacity building" four independent modules, collectively called "Population Level Information System" (PLIS), were developed for *Avena*, *Beta*, *Brassica* and *Prunus*, allowing the search for occurrence within a specific species in their natural distribution area. PLIS extends the Crop Wild Relative Information System (CWRIS) operated by the University of Birmingham in an exemplary way. PLIS combines different data sources, uses harmonized data and allows: (i) the search for occurrences by taxon information; (ii) the search for occurrences by geographical information; and (iii) the combined search for occurrences by geographical information (Eurostat administrative units, NUTS, LAU) and Natura 2000 protected areas. The search results can be displayed on a map or downloaded as a file (see also below, Section 3.8). The module for *Beta/Patellifolia* was used to search for populations and sites in the EU suited for the establishment of genetic reserves in addition to that for *Beta patula*. Based on information from PLIS the Rey Juan Carlos University (Madrid) developed an information system called GenResIS. It provides information on recommended locations, mainly in protected areas, suited for the establishment of genetic reserves for *Beta* taxa across Europe in the context of the AEGRO project. In summary, due to the EU-project funding, the Working Group on *Beta* made significant progress in the field of *in situ* conservation of wild taxa related to cultivated beets.

A proposal on potato was accepted for funding under the **second call of the AEGIS Grant Scheme**. The proposal "Identification of old potato clones having unreliable variety names by means of fingerprinting using microsatellite (SSR) markers to assist in setting up the AEGIS collection for potato cultivars" was submitted by the Centre for Genetic Resources (CGN), The Netherlands. This

¹ Maxted N, Dulloo ME, Ford-Lloyd BV, Frese L, Iriondo JM, Pinheiro de Carvalho MAA, editors. 2011. Agrobiodiversity Conservation: Securing the Diversity of Crop Wild Relatives and Landraces. CAB International, Wallingford.

project will involve partners from SASA, UK and potato curators from IPK, Germany, INRA, France and others. The assigned AEGIS grant (€ 11 000) has been complemented by re-allocation of funds (€ 15 800) that were originally budgeted for a Potato WG meeting. The Steering Committee agreed to this change on condition that the project would aim at identifying the clones to be included in the European potato collection under the AEGIS regime. These clones will therefore be expected to be documented in EURISCO through the respective National Inventories as AEGIS accessions.

Summary of AEGIS development status

Beta WG

- European Collection: The WG has never had an opportunity to discuss AEGIS implementation (its last meeting was in 2006). The first opportunity will be at its fourth meeting in 2012.
- AQUAS: The Group has developed a seed increase protocol for wild and cultivated *Beta* germplasm. The Group has identified areas where a quality concept should be developed: germplasm acquisition; status of acquired material; regeneration; post-harvest; pre-storage; germination capacity and storage conditions.

Fibre Crops (Flax and Hemp) WG

The Group discussed the AEGIS implementation in 2010 among the few participants in its meeting. It was felt that more time was needed to fully absorb information on AEGIS and that the involvement of all members of the WG was necessary in order to implement the process. The participants agreed to focus on the procedures to select flax accessions for the European Collection, under the coordination of the Chair. However, the Group members were not completely convinced of the feasibility and value of a European Collection. They were also discouraged by the cost of devoting time to the selection of accessions. Moreover, the establishment of a European Hemp collection is hampered by legal issues that make it difficult to implement free movement of germplasm.

Medicinal and Aromatic Plants WG

- European Collection: The Group discussed the implementation of AEGIS during its meeting in 2009 and agreed that MAP accessions could be proposed for the European Collection, but did not start developing procedures for their selection. Similarly, there was agreement on the need to adopt quality standards for conservation, without entering into the process of defining the standards. The *Origanum* project has provided data that could be used in defining *Origanum* accessions for the European Collection.
- AQUAS: A methodology for using insect pollinators in heterogamous vegetable species, medicinal, aromatic and culinary plants grown in technical isolation was published by Crop Research Institute, Prague and Bee Research Institute Ltd., Dol.

Potato WG

European Collection: The project funded by the AEGIS Grant Scheme will analyse 500 potato clones with SSR markers and will identify mislabelling or confirm the genetic uniqueness of the clones. Based on the results, the project will indicate which of the fingerprinted varieties will be the most appropriate for inclusion in the European Collection. Due to the late start of the project in the potato growing season, the duration has been extended by six months. Therefore, the project is expected to be concluded in December 2012.

Outlook for 2012

The *Beta* Working Group will hold its fourth meeting in June 2012 in France.