

Project Proposal Phase VIII (2009 – 2013) of the Umbellifer Network

June 2008

1. Background and justification

The Umbellifer Working Group is responsible for the crops and wild taxa within 9 genera, namely *Anethum* (dill), *Apium* (celery, celeriac), *Carum* (caraway), *Chaerophyllum* (chervil) *Coriandrum* (coriander), *Daucus* (carrot), *Foeniculum* (fennel), *Pastinaca* (parsnip) and *Petroselinum* (parsley). Umbellifers are very important food crops all over Europe. They are consumed as vegetables and condiments and play an important role in a healthy diet. Some of these species such as carrot are economically important while others are considered minor crops. However, despite their importance and their image as health products, these crops do not benefit from work on plant genetic resources as much as other crops. Common effort for maintaining genetic resources of these crops is needed, especially on the minor crops.

The Umbellifer Working Group is relatively large with 24 national representatives. However, about 10 representatives are regularly involved in the WG work. During the last phase, important progress has been achieved (cf reports 2003-2006 and 2006-2008). The status of conservation facilities, although variable, are of a generally good standard for gene bank work. Different distribution practices were reported particularly relating to the use of MTAs and the availability of collections. The level of safety duplication in 9 collections was reported as incomplete, but in general progress has been good. A significant level of characterization has been achieved by national programmes with work concentrating on carrot, celery, dill, fennel and parsley. The European Umbellifer database was last updated in 2007 with the use of the EURISCO format.

During Phase VII the Umbellifer WG has been reinforced with a structured network of genebanks in order to answer the pressing need for characterization and regeneration of these crops.

Even if good progress has been achieved during Phase VII, the Umbellifer WG is aware of the tasks remaining. The WG has agreed to pursue activities on regeneration and characterization tasks, based on national programs, but this would benefit from a more coordinated task sharing approach between collections, especially to improve safety duplication level. Therefore, one of the main objectives of Phase VIII is to implement the Aegis concept on carrot as a model crop for the WG. The methods and tools used for implementing Aegis on carrot will also be of benefit to the other umbellifer genera. These tools will enable quality standards for the regeneration and conservation process to be put in place and will allow determination of both the uniqueness of material in the collections and the criteria for identification of Most Appropriate Accessions. As a specific project to be funded by the ECPGR, the Umbellifer WG wishes to make progress on the knowledge of wild relatives.

2. Objectives of the project

Wild Umbellifer relatives are becoming more important as genetic resources for the future crop breeding programmes, but at the same time display a very diverse *in-situ* status, from very abundant to endangered species. One of the main problems we are facing for the management and use of wild relatives is poor taxonomic identification, especially in the *Daucus* genus, leading to misidentification in collections. The objective of the Umbellifer WG is to clarify the status and identification of wild relatives in *ex-situ* collections, but also *in-situ* for endangered species.

This project on wild relatives will be developed in several steps; review of material in collections and in some *in-situ* locations, identification of accessions at the taxonomic level, characterization of accessions for several traits (adapted descriptors for vegetative and floral parts, ploidy level..). We ask this project to be supported by ECPGR funds (cf budget table).

3. Workplan

Workplan and time table

The work plan mixes on going activities, mid-term organizational objective (Aegis) and the specific project on wild relatives.

Activity	Output	Time	Comment
1. WG organization	Identification of minor crops leaders and database manager Better Integration of national projects in WG workplan	Dec 2008 June 2009	WG members
2. Regeneration of collections	Document for standard regeneration recommendation Involvement of seed companies in regeneration	On going	National programs
3. Conservation of collections	Document on safety duplication and long-term storage recommendation Implementation of safety duplications in country or between countries	2010 2013	WG members
4. Characterization and evaluation	Regular update of national actions	Dec every year	National programs
5. Studies on minor crops	Development of descriptors for all minor crops	2011	Minor crops leaders
6. Database update	Update of information and format for Eurisco Development of common format for evaluation data	On going 2011	Database manager
7. Wild Umbellifer relatives project	Review of material in collections and in some <i>in-situ</i> locations Identification of accessions at the taxonomic level Characterization of accessions for several traits (adapted descriptors for vegetative and floral parts, ploidy level..) Ecogeographical surveys and prospection of wild relatives	2010 2010-2011 2011-2012 2011-2012	Project to be partially funded by ECPGR
8. Implementation of AEGIS on carrot as a model crop	Quality practices recommendation and implementation Criteria and identification of Most Appropriate Accessions Identification of collections' responsibilities for shared conservation	2011 2012 2012	Contact with Brassica WG as a Aegis model crop for outcross-pollinated seed propagated species
9. Umbellifer WG meetings	Workplan follow-up Workplan assessment	2011 2013	All WG members Chair, Vice-Chair & crop leaders

4. Project coordination and administrative structure

The project will be coordinated by Dr Geoffriau (Umbellifer Interim Chair) and Umbellifer crop leaders.