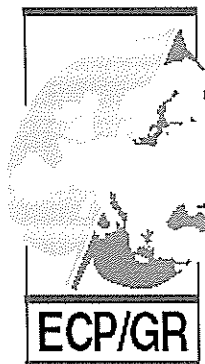


European Cooperative Programme for
Crop Genetic Resources Networks (ECP/GR)

Report of an extraordinary
meeting of the ECP/GR Working
Group on *Brassica*



22 September 1997
Rennes, France

L. Maggioni, *compiler*

Contents:

CONCISE SUMMARY OF THE ECP/GR MEETING.....	3
ISHS CRUCIFER SYMPOSIUM, GENETIC RESOURCES SESSION	4
REPORT ON CRUCIFERAE GERMPLASM COLLECTIONS IN AUSTRIA	5
ACTIVITIES REGARDING BRASSICA GERMPLASM IN ROMANIA.....	8
AGENDA	10
LIST OF PARTICIPANTS	11

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Concise Summary of the ECP/GR meeting

On 22 September 1997, members of the Working Group on *Brassica* attending the International Society for Horticultural Science (ISHS) Crucifer Symposium, met for an extraordinary session of the ECP/GR Working Group on *Brassica*. Relevant outcomes of the meeting were the following:

- **Bras-EDB:** The ECP/GR *Brassica* database (Bras-EDB) is now available on Internet in downloadable form. A complete update will be prepared during the next 3-4 years, based on the IPGRI/FAO Multicrop descriptors. A minimum list of characterization/evaluation data will be included. These will be based on the previous list agreed by the Group in 1994. However, the Nordic Gene Bank will coordinate a revision of the descriptors in the near future, and incorporate the addition of minimum descriptors for kohlrabi. The database manager will decide whether or not to include the WIEWS descriptors of the IPGRI/FAO Multicrop list in the database. The Group agreed on the importance to include data on the safety duplication of accessions
- **Safety duplication:** The Memorandum of Understanding between the Nordic Gene Bank and Latvia for safety duplication was distributed to the Group, which was invited to further develop similar arrangements between other genebanks.
- ***In situ* conservation:** Support was given to continuing to encourage Italian authorities to develop activities for *in situ* conservation of wild Sicilian brassicas.
- **EC1467/94:** A new project proposal will be prepared, under the coordination of L. van Soest, Centre for Genetic Resources, the Netherlands (CGN), for submission to the third call of the EU funded programme EC1467/94. The offer to participate in the project will be extended to *B. napus* breeders in Germany and to *B. oleracea* breeders in the Netherlands. The aim of the project will be the evaluation of accessions belonging to core collections of *B. oleracea*, *B. napus* and *B. rapa* in different European locations¹.
- **Core collections:** Horticulture Research International (HRI) and CGN recently received requests from users to develop core collections for

¹ As a result of the third call for proposals for the EU programme EC 1467/94 on the conservation, characterization, collection and utilization of genetic resources in agriculture, Project GEN RES 109-112 on "Brassica collections for broadening agricultural use, including characterising and utilising genetic variation in *Brassica carinata* for its exploitation as an oilseed crop", was submitted for funding consideration in the 1999 budget round. This is the consolidation of two project proposals. The project is coordinated by Dr Loek J.M. van Soest, Centre for Genetic Resources The Netherlands, Wageningen, The Netherlands.

special interests. The Group agreed that genebanks are not equipped to offer this kind of service, unless specific funds from EU projects or other sources are allocated for this purpose. However, it was agreed that a sensible response to these requests would be to ask interested users to develop the core collection themselves, making use of the available Bras-EDB. Specific samples requested to the genebanks would then be supplied in reasonable quantities.

- Regeneration guidelines: the Group discussed the possibility of establishing common standard guidelines for the regeneration of *Brassica* accessions. Considering the high number of different crops involved, each one with its specific regeneration requirements, and expecting major difficulties in reaching an agreement between different genebanks, the group decided not to engage in this initiative for the moment. However, Prof. M. Gustafsson offered to prepare a compilation of regeneration systems currently used in the various genebanks.
- Country reports from Austria and Romania were sent to the ECP/GR Coordinator for inclusion in the present report (see page 5 and page 8).

ISHS Crucifer Symposium, genetic resources session

During the session on Genetic resources, the ECP/GR Coordinator presented a paper on "Activities and achievements of the ECP/GR *Brassica* Working Group"². Dr I. Boukema, database manager of the ECP/GR *Brassica* database, gave an on-line presentation of the Bras-EDB, accessible from <http://www.cpro.dlo.nl/cgn/brasedb> and from the European Information Platform web site (<http://www.cgiar.org/ecpgr/platform>)³. Dr S. Warwick, Agriculture and Agri-Food Canada, presented a relational taxonomic database for *Brassica*. This will shortly be available on the Internet. A presentation was given by Isabelle Divaret, INRA, Station d'Amelioration des Plantes de Rennes, France, on the use of RAPD markers to analyze the genetic variability of a collection of *Brassica oleracea*. It was shown that the three main crops of the collection (winter cauliflower, cabbage and kale) were clearly separated and subgroups corresponding to biological cycle length for cauliflowers and to different morphological and geographical types for cabbages were resolved.⁴

² L. Maggioni. 1998. Activities and achievements of the ECP/GR *Brassica* Working Group, in: Thomas, G. and A.A. Monteiro, editors, Proceedings of the International Symposium on Brassicas. Acta Horticulturae, 459, 243-248.

³ I. W. Boukema and T. J. van Hintum 1998. The European *Brassica* Database, in: Thomas, G. and A.A. Monteiro, editors, *op. cit.* 249-254.

⁴ Divaret, I. And G. Thomas. 1998. Use of RAPD markers to analyze the genetic variability of a collection of *Brassica oleracea* L., in: Thomas, G. and A.A. Monteiro, editors, *op. cit.*, 255-262.

Report on Cruciferae Germplasm Collections in Austria

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Introduction

Austria has a network of small genebanks coordinated by the Österreichische Genbanken für Kulturpflanzen (ÖGK) (Austrian Genebank for Cultivated Plants). There are only a few *Brassica* accessions in these genebanks. The author, who is the Austrian attending member of the ECP/GR Working Group, was involved in a few *Brassica* projects (turnips: *Brassica rapa*, varieties for mustard production: *Brassica nigra*, *Sinapis alba*).

Austrian Genebanks for Cultivated Plants (ÖGK)

In Austria five public seed banks constituted a working group "Austrian Genebanks for Cultivated Plants" = "Österreichische Genbanken für Kulturpflanzen" (ÖGK) in 1991. The Index Seminum Austriae, a catalogue of all accessions edited in 1992 represented the first joint project of this ÖGK. The five public seed genebanks are maintained by individual institutions located in different parts of the country. This concept ensures that each accession is regenerated in its typical climatic zone. In October 1995 a national programme was started under the leadership of the Federal Ministry of Agriculture.

In the south of Austria the "Landesversuchsanlage für Spezialkulturen" is situated in Wies in the main apple growing area of Styria with a very mild climate. In Rinn, Tyrol, in the west of Austria, there is the "Landesanstalt für Pflanzenzucht und Samenprüfung", at an altitude of 900 m, with a very good collection of accessions adapted to alpine agriculture. A very important collection for cereals is kept by the Federal Office and Research Center for Agriculture (BFL), which is situated in the center of Austria's Pannonic wheat growing area north of Vienna with very fertile soils but rather low precipitation. The BFL has new facilities for long term storage of accessions (responsible person: Dipl.-Ing. Sonja Schantl).

The Federal Office of Agrobiolgy in Linz (Head of Department: Dr. Rudolf Schachl, Curator: Wolfgang Kainz) is responsible for the overall organization and coordination of the national program of genebanks and the edition of the Index Seminum Austriae. They maintain a large collection of *Triticum aestivum*, *T. durum*, *Hordeum vulgare* and *Phaseolus* sp. in the genebank in Linz.

Non-Governmental Organization (Verein Arche Noah)

There is also a very successful non governmental organization, which was established 10 years ago by Nancy Arrowsmith and her team. Arche Noah is a society for the maintainance of the diversity of cultivated plants and their further development (Gesellschaft zur Erhaltung der

Kulturpflanzenvielfalt und deren Entwicklung). This genebank is especially valuable, because all the accessions are regenerated in a very beautiful baroque garden in Schiltern near Krems, which is open to the public, showing the practical use of all the vegetables, herbs and minor crops, thus emphasizing the importance of genetic resources in present day agriculture. Dr. Thomas Gladis, a well known scientist from Gatersleben who has worked on Brassicas, has joined the Arche Noah. Arche Noah has organized collecting trips to Croatia and Romania on its own initiative to find genetic resources threatened by genetic erosion after the opening up of Eastern European countries.

A Rich Flora of Wild Brassicaceae in Austria

Austria boasts a very high number of wild Cruciferae. The western part of the country has a typical alpine vegetation with many interesting species (e.g. *Arabis* sp., *Draba* sp.) The hilly landscape north of the Alps is cooler (Atlantic influence), while it is warmer south of the Alps (Illyric influence). In the east of Austria we have the so called Pannonic climate, which has a strong continental influence (*Sisymbrium* sp., *Erysimum* sp.). There we can find species which are part of the eastern European "steppe" vegetation, e.g. *Crambe tatarica*. The transition zone between the Alps and the Pannonic climate area has special floristic interest (*Hornungia* sp., *Conringia* sp., *Peltaria* sp.). *In situ* conservation of all these plants is very important, as it was shown in the last ISHS Crucifer Symposium in Rennes, that wild Brassicaceae are attracting more and more interest.

Brassicas and Cruciferae in the Austrian collections

There are very few *Brassica* accessions in these collections and they have not been described in detail so far, according to commonly used descriptors. This is however planned for the near future. Dipl.-Ing. Wolfgang Palme of HBLVA Wien - Schönbrunn is in charge of the coordination of the vegetable collection, which includes some accessions of cabbages (*Brassica oleracea* var *capitata*) and cauliflowers (*B. oleracea* var *botrytis*). Cruciferae herbs and spices can be found in the collection of the Federal Office and Research Centre for Agriculture (BFL) in Wien, as well as in the "Landesversuchsanlage für Spezialkulturen" in Wies, Styria (*Brassica nigra*, *Brassica juncea*, *Sinapis alba*). The "Landesanstalt für Pflanzenbau und Samenprüfung" in Rinn, Tyrol, maintains a small collection of turnips (*Brassica rapa* var *rapa*).

Present and Future Activities and Plans

At the moment a supplement to the "Index Seminum Austriae" of 1992-1996 is in preparation at the ÖGK. Data will be collected in database format. It will be therefore possible to integrate the data into the Bras-EDB, hosted at CGN, the Netherlands (database manager Dr. Jetje Boukema). The author is involved in a project on Brassica turnips (*Brassica rapa*) which will probably be integrated into the EC BRASCO project as well as in another small project to evaluate *Brassica* and *Sinapis* varieties for mustard production.

Contacts and Addresses

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Activities regarding Brassica germplasm in Romania

Mihu Gica

Vegetables Research Station Bacau, Romania

The Research Institute for Vegetables and Flowers Growing of Romania has elaborated specific guidelines for regeneration procedures in *Brassica*. These are based on experience from *Brassica* breeding and seed production activities developed since 1965. The Research Institute for Vegetables and Flowers Growing and the Vegetable Research Stations are responsible for the regeneration and storage of the *Brassica* accessions (varieties, hybrids and lines).

The *Brassica* germplasm under storage includes the following:

- 1) Landraces originated in Romania and other European countries
- 2) Varieties and hybrids developed and marketed in Romania and other European countries
- 3) Varieties and hybrids developed and marketed in China
- 4) Varieties of Romanian origin with special characters and which are not conserved elsewhere.

Most of the *Brassica* accessions in the Institute are classified as belonging to category 2) above.

The Research Institute regularly carries out the regeneration of the following species:

Brassica oleracea L. var *capitata* f. *alba* (white cabbage - early, mid and late maturing)

Brassica oleracea L. var *botrytis* (cauliflower)

Brassica oleracea L. var. *gongylodes* (kohlrabi)

The *Brassica* species are predominantly outbreeding species and the populations are thus heterozygous, which renders them particularly vulnerable to change in gene and genotype structure. Regeneration procedures for conservation should ensure that cross pollination is maximized and selection is minimized. Seeds are stored in plastic bottles at - 20 °C. The collection of *Brassica* germplasm consists of 55 accessions belonging to three different taxa.

The following tables 1 and 2 show the structure of the collection. Additionally, 29 cabbage self-incompatibility lines are also conserved.

Table 1: Seed collection of *Brassica* sp.

Species	Accession type	Number of accessions
<i>Brassica oleracea</i> L. var <i>capitata</i> f. <i>alba</i>	Varieties	20
	Genetic stock	29
<i>Brassica oleracea</i> L. var <i>capitata</i> f. <i>alba</i>	Varieties	2
	Genetic stock	2
<i>Brassica oleracea</i> L. var <i>capitata</i> f. <i>alba</i>	Varieties	2
Total number of accessions		55

Table 2: *Brassica* accessions in the collection (varieties developed and marketed in Romania)

No.	Species	Variety	Origin
1	White cabbage	Vidra Early	Romania
2		Ditmark	Romania
3		Gloria	Romania
4		De Buzau	Romania
5		Langedijker Beware Lares	The Netherlands
6		Julia	The Netherlands
7		Minicole	The Netherlands
8		Hinova	The Netherlands
9		Hidena	The Netherlands
10		Janfeng	China
11		Wanfeng	China
12		Quingfeng	China
13		Jiginfeng	China
14		P 2-1	China
15		P 2-2	China
16		P 2-3	China
17		P 2-4	China
18		P 2-5	China
19		P 2-6	China
20		P 2-7	China
21	Cauliflower	Bacau early	Romania
22		Fortados	Romania
23	Kohlrabi	Trero	Romania
24		Rovel Rogli	Romania

Extraordinary Meeting of the ECP/GR Working Group on *Brassica*

Rennes, France, 23 September 1997

Agenda

Meeting starting at 9.00

1. Status of the European *Brassica* Database
 - Missing data sets
 - Unknown accessions
 - Inclusion of characterization data
 - Provision of downloadable on-line zip-file
 - Use of the IPGRI/FAO Multicrop passport list
2. Safety duplication
 - Current safety duplication status
 - Transfer of safety duplicates
 - Establishment of bilateral arrangements
3. In situ conservation
 - Report of a Workshop on wild Sicilian brassicas (Palermo, Italy, 19 April 1997)
 - Progress made for *in situ* conservation
 - Progress made in the inclusion of *B. villosa* and *B. rupestris* in the Red List of the Bern Convention
4. Resubmission of EC project (third call for proposals EC 1467/94)
5. Development of core collections
 - How should curators respond to requests for core collections?
 - Should the Group coordinate the development of core collections?
6. Other business

List of participants

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(until September 1997)

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