

BALADY STRAINS OF EGYPTIAN VEGETABLES

II GENE BANKING; APRIL 16 - APRIL 30, 1986

III COLLECTION FROM JUNE 17 TILL JULY 2, 1986

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Balady strains of Egyptian vegetables

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Balady strains of Egyptiana vegetables.

II Gene Banking; April 16 - April 30, 1986

III Collection from June 17 till July 2, 1986

II Gene Banking

1. Introduction

On behalf of IBPGR a first collection of local vegetable strains was built up in 1985. The results were described in the report 'Balady strains of Egyptian vegetables. I. Collection from April 21 till May 24, 1985'.

Also on behalf of IBPGR a mission was fulfilled to the Vegetable Research Department of the Horticultural Research Institute and the Onion Research Section of the Field Crops Research Institute, respectively in Dokki and in Gizah, in order to discuss the appropriate approach of the conservation, registration, characterization, multiplication and description of the mentioned balady strains. This mission was carried on from 16 - 30 April, 1986.

The following persons are/were responsible for the following subjects:

- Dr. Salah Baha Eldin, Director of the Horticultural Research Institute.
- Mr. Mohamed Sami Tawfik, Director of the Vegetable Research Department.
- Mr. Abd El Hakim, Head of the Cucurbitaceae Department, Expert in radish and turnip.
- Dr. Samir Shosha, Coordinator for Gene Bank affairs of the Vegetable Research Department, Expert in melons, snake melons and lettuce.
- Mr. Abd El Monsif, Expert in water melon and okra.
- Dr. Hamdy El Doweny, Expert in melons and red carrots.
- Dr. Mohie Eldin Abdel Wahab, Expert in cucumbers, squash, cauliflower and white cabbage.
- Mr. William Mishriky, Expert in radish, turnip, lettuce and kurrat.
- Mr. Gad El Rab M. Salema, Expert in garlic.
- Mrs. Samia Abd El Rahman, Curator of the gene bank collection of the Vegetable Research Department.

- Dr. Wafik El Shafie, Director of the Onion Section of the Field Crops Research Institute.
- Dr. Ahmed El Kafouri, Coordinator for Gene Bank affairs of the Onion Section.
- Dr. Ihsan El Moufti, Acting curator of the onion accessions.
- Dr. Mohamed El Gamal, Consultant of the Onion Section.
- Dr. Fathi Abdelgaber Ahmed, Onion Expert.
- Mr. Mohamed Youssef, Onion Expert.

Up to now these persons have been predominantly in charge of breeding and not at all of gene banking. Therefore, in practice and during the discussions on topical gene bank procedures it appeared that the approach of the job was more or less done from the angle of selection and subsequent multiplication of only the most suitable appearing parts of the collections and strains. Consequently the details of maintenance (e.g. population size, selfing/crossing/random mating, with/without selection) were essential items in the personal and joint discussions. The conclusions have been summarized under 3. This paragraph 3 is preceded by a description of the functioning of gene banks in general (under 2).

In paragraph 4 details are given of the crops involved. This is a partial repetition of paragraph 6.2 in report I (April - May, 1985), however the knowledge of Egyptian vegetables could be extended considerably in April 1986.

2. The function of gene banks in short

1. Main activities (are): collection, multiplication, description, conservation and distribution of heirloom varieties. This is mainly done by IBPGR-designated active collection centres. IBPGR-designated base collection centers only take care of the conservation of duplicate seed samples.
2. Active collection centres gather accessions from practice (especially from farmers) and from non-gene bank collections (e.g. breeders' working collections). The owners of the non-gene bank collections are referred to as 'donors' of the accessions supplied to gene banks.
3. Registration, characterization and preliminary evaluation (see Status Reports) are the responsibility of the active collection center, but concerning accessions from non-gene bank collections this work should be done

by the donors.

4. Further evaluation (see Status Reports) should be done by donors and (obligatorily) by the recipients of released accessions.
5. Collection, centralizing and computerizing of data (see 3 and 4) must be done by the IBPGR-designated central data base.
6. The central data base freely releases data on request. The available information includes description data of all collected accessions, availability (of seed samples) and names of institutions/persons (=active collection centers + donors) responsible for the release of the seed samples.

3. Introduction to gene banking of vegetables in Egypt

1. Collection of seed samples.

If possible collect 200 grams of balady strains and 1 kg of modern varieties. Use IBPGR collection forms.

NB: Conservation of modern varieties is a prerequisite for the determination of progress made by breeders in a certain period of time.

2. Storage immediately after collection.

Store the seeds as soon as possible under suitable conditions: -20°C and a relative air humidity of 20%. The relative humidity is the most important factor, Silicagel as well as CaCl_2 are very good desiccants.

3. Registration.

Use the passport descriptors (1 and 2) of the descriptor list given in the IBPGR Status Reports of Cruciferous Crops (till 2.25), Allium, Abelmoschus, and Cucurbitaceae.

For lettuce no Status Report is available.

The collection data (2) must be transcribed from the collection forms.

4. Characterization and preliminary evaluation.

Use for this purpose numbers 3 and 4 of the descriptor list. This category is lacking in the Cruciferae Reports. Therefore for this crop (and for Lactuca, for which no Status report is available) use is made of the UPOV descriptors.

NB: UPOV = Organisation for Breeders' Rights, Geneva, Switzerland.

Parts 3 and 4 of the descriptor list have priority over part 5 (further evaluation) although 5 is most important to breeders.

For Allium crops, for the sake of feasibility, the IBPGR Allium working group reduced parts 3, 4 and 5 of the descriptor list to a 'minimum descriptor list' (see Annex I).

Most characters are expressed in figures from 0-9 or in + and -. This notation facilitates computerization.

Important question is how to quantify the variation. This could be done arbitrarily with +, ++ etc. or by using percentage for separate classes.

However, no uniform method has been developed up to now.

5. Further evaluation.

Use no. 5 of the descriptor list for this purpose. In the case of Cruciferous Crops: from 2.25 onward.

Further evaluation cannot be done by gene banks unless extra manpower is provided for this special job. This work should be done by the users (recipients) of gene bank accessions: breeders and research workers. For comparison always one or more standard varieties should be included.

Results (data) must be sent to the donor of the seed samples.

In Egypt the vegetable gene bank is in the hands of breeders. Naturally breeders want to evaluate the balady strains as soon as possible, because it is their task to produce improved varieties. Nevertheless for the sake of proper national and international functioning of the Egyptian vegetable gene bank, it must be emphasized that characterization and preliminary evaluation deserve priority over further evaluation and that in principle all accessions should be multiplied as such, that is without selection.

6. Multiplication.

Identical strains should be multiplied together but different strains must be maintained separately, no matter whether they are bad or good.

The number of balady strains to be maintained separately could depend on

the importance of the crop, the number of available strains and the magnitude of the differences. E.g. of the rather few Saidi onion strains available, relatively many could be kept separately and of the very many Behairy onion strains relatively few.

As in radish no clear differences seem to occur, combined multiplication might be considered.

If many balady strains have been collected, then a limited number (e.g. 20) of them could be sown each year for description and/or multiplication. This could be considered for melons and Behairy onion strains.

As said before, separate balady strains should be multiplied as such. If selection is wanted, this could be done in a random part of the strain. Another crucial point is the minimum number of plants needed for the maintenance of the genetic variability of a given population. It can be calculated that 100 is better than 50. Less than 30 seems unacceptable (see below; table from the Cucurbitaceae Status Report).

A third crucial point is that, if possible, multiplication of cross-pollinating crops should always be done by massing or crossing and not by selfing.

Population sizes necessary for preserving non-fixed alleles in accession samples of cross-pollinated species (assuming random mating).

Allele frequency in population	Population size* for confidence of		(The figures in this table are given with the assumption that sufficient seeds will be produced by each parent to achieve .99 probability of preserving heterozygous alleles; i.e. at least 7 seeds produced by each parent. This should be considered when pollen mixtures are used for crosses.)
	95%	99%	
.90	1	1	
.70	2	2	
.50	3	4	
.30	5	7	
.10	15	22	
.05	30	45	
.02	74	114	
.01	150	230	

* Number of plants

4. The crops involved

Onions are produced from three different crops. The winter crop is grown south of Cairo, the only variety being Giza 6 Improved. This variety is a rather uniform, globe shaped, yellow, exportable onion type. Harvesting is done in March-April. Giza 6 is also used for the growing of onions from sets. This crop is used for local consumption and dehydration; it is grown south of Cairo and harvested in December-January. The summer crop is grown in the Delta, North of Cairo, mostly interplanted with cotton (harvesting in May - June). Many local, so-called Behairy strains are used for the growing of this crop. Some of them are completely yellow, some completely red, but most of them are a mixture of yellow, red and intermediate colour. Local strains from Kharga might show strong resistance to pink root.

The onion accessions collected in 1985 were grown as a winter crop in Giza, one of the most remarkable phenomena being rather high percentages of bolting. One of the accessions appeared to be kurrat whereas two other ones did not show any germination. Differences were observed in e.g. bulb colour and earliness.

Leeks are of very limited importance in Egypt. It is a long and slender type, probably originating from Turkey or the Balkans. This crop is only grown in the northernmost part of the country, namely in the Behaira governorate: about 30, 200 and 300 feddan in respectively Damanhour, Kafr El Dawwar and Rashid. It is grown (after planting in October) as a winter crop, mainly for exportation to Europe in January and February.

Leeks accessions were not collected in 1985.

Kurrat is a leek type with a very short pseudostem. The green leaves are especially used to prepare tahamia, a special and very popular Egyptian dish. After sowing (in November) from the same plants about 7 cuttings are harvested starting in April. No special varieties are known.

The kurrat accession collected in 1985 were sown in Dokki but they did not emerge. This is contradictory to the rather high germination percentages found in Wageningen (between 31 and 97).

Garlic is grown all over Egypt and very probably all balady garlic is of the same clone. Nevertheless the variation among the balady strains is remarkable (according to Dr. Rafaat Shamy of the Veg. Res. Department). The cloves are of a relatively small size and therefore at present a Chinese garlic clone (with bigger, but pinkish, cloves and being resistant to rust) is grown for export. This variety also shows a remarkably wide variation. A third variety has recently been introduced from the USA and is tried out in practice.

The garlic accessions collected in 1985 had been planted in Seds (Minya governate, South of Cairo). Interesting morphological differences were observed. Moreover one of the accessions (collection number 99 or 103) seemed to be resistant to mites.

Of white cabbage two types are grown, balady and a foreign variety (especially for winter production) named 'Brunswick' of which the seeds are imported. Cabbage is only used for stuffing (with rice) and for pickling.

The white cabbage accessions collected in 1985 had not yet been sown.

Most cauliflower is one of the Snowball type. This is a foreign variety from which local strains have been developed. Both size and quality of Egyptian cauliflower (harvested around January) are excellent. Kibu Giant is a well known imported strain from Denmark. The following baladay strains, although becoming rare, are still grown as well: Sultaney, Mehayer, Tobi and Amshery. These strains are later in the given order of succession.

The cauliflower accessions collected in 1985 had not yet been sown.

Of turnip all balady is of the Iraquee type (thick-top-shaped). This type was introduced about 40 years ago and has been contaminated with genes of old local strains. Thus balady strains of Iraquee came into existence.

A new variety could emerge from the cross between Iraquee types and Everest 150 (of Sakata, Japan) having long white fleshy roots, smooth leaves and

excellent eating quality but no adaptation to heavy soils. Imported varieties are Purple Top (from the Netherlands) and White Globe (from Arco Seeds, USA). Turnip is only used for pickling (adding red beets for colouring).

The turnip accessions collected in 1985 were grown in Kaha (North of Cairo). Rather wide variation was observed, e.g. in colour and shape.

By far most of the Egyptian radish is balady, showing white colour and thin elongated tubers. Both leaves and tubers (roots) are eaten. No special names of strains are known.

Nowadays the European type of radish (red-round) of which only the tubers are consumed, is grown as well. The most modern radish type, being red-round and of a very big size, is also appearing on the Egyptian markets.

The radish accessions collected in 1985 were grown in Kaha as well. Remarkable variation in e.g. root characters and flowering time was observed.

Of Okra all balady strains have pronounced spines. New spineless foreign varieties are appearing and becoming popular, namely: White Velvet, Golden Coast (the best) and Crimson Spineless.

The okra accessions collected in 1985 were recently sown in Dokki.

Different types of lettuce are grown in Egypt. Seed of iceberg lettuce is imported. Dark Green is an imported Roman type variety. In the South cow-lettuce is grown, which is not popular as a vegetable. It is predominantly grown for seeds from which oil is extracted, containing a high level of vitamine E. Other balady strains are more suitable for human consumption.

The lettuce accessions collected in 1985 have not yet been sown.

Beth Alpha is by far the most important cucumber variety. It is of foreign (Israeli) origin (seed are imported from e.g. Vilmorin, France). The balady strains are disappearing very rapidly because of the much more heterogenous shape and size. Madina is a new variety of Asgrow, showing resistance to powdery mildew under Egyptian conditions. Pepinex (from Bruinsma, The Netherlands) is very suitable for growing under plastic.

The cucumber accessions collected in 1985 were grown in Dokki and were typical balady strains, showing pronounced morphological and physiological variation.

Snake melons have not yet been subjected to any breeding activity. Several strains have a special name (e.g. Shamy and Izmirly). The crop shows much variation in skin colour, flesh colour, length, shape etc. It is eaten in winter time as a substitute for slicing cucumbers. In the recent past it was (rarely) eaten as a fruit, namely the (lost) variety Agour.

The snake melon accessions collected in 1985 were grown in Dokki. They showed much variation in fruit length colour, shape etc. The fruits of collection number 63 were extremely long (about 1.5 m).

Several new varieties of melons have been developed, namely: Shahd El Edfina, Ananas Kahera 6 and Shahd El Dokki (=improved Sh. El Edfina). Kahera 6, originating from the University of Cairo, has a very good taste but is susceptible to skin cracking. The Egyptian Ananas has a very good keeping quality because of fixed seeds. Ananas seeds are imported from many sources. Many balady strain varying widely in (e.g.) size, shape, colour and taste, are still grown in practice. Probably more than 15 types can be distinguished. These local types are a source of contamination for the locally grown seeds of the new varieties. At least one local strain (Kafr hakin, very high in sugar content) has passed out of cultivation.

All melon accessions collected in 1985 were grown in Dokki and appeared to be balady.

Giza 1 and Giza 21 , a new and a very new variety of water melon, have strong and very strong resistance to Fusarium respectively. The acreage of these and of imported varieties (Congo, Charleston Grey and Chilian Black) has increased very rapidly and consequently the balady strains (e.g. Friska, being resistant to Fusarium and a variety with orange fruit flesh) are becoming very rare or have even disappeared. Wild water melon (*Citrullus colocynthis*) is quite common in Egypt, e.g. in the Oases Kharga and Dakhla and at the North coast, near Mersa Matruh. It is crossable with the cultivated type and is a source of resistance to water-melon mosaic virus 2, powdery mildew and drought. It is used as a pollinator for the common water

melon. Fruits are collected and sold as a remedy to rheumatism. Seds, in the Beni Suef Gov. is one of the most important growing areas of water melons in Egypt.

The water melon accessions collected in 1985 were predominantly modern varieties. They were grown in Seds. Perhaps only some of them are balady strains.

Also balady strains of squash are disappearing rapidly because of the introduction of a new variety named Eskanderani. It is a bush type with improved fruit quality. A serious problem in this crop is Zucchini yellow mosaic virus. The only, solution, though insufficient, so far is aphid control by insecticides.

The squash accessions collected in 1985 grown in Dokki, were all Eskanderani, except one, which was a pumpkin.

5. Some more details of the accessions collected in April-May 1985.

Crop	number of accessions					remarks
	total	non-germinating	deviating crop	balady	non-balady	
Cauliflower		7		?		not yet sown
Cucumber	12	1(162*)		11		
Cucumber	12	1(162*)		11		
Garlic	16			16		
Kurrat	5	5**				
Lettuce	13			?		details are not clear
Melon	23			23		
Okra	30			29	1(=Golden Goast)	
Onion	25	3(39, 175, 180)	1(20=kurrat)	15	3	of 3 bulb samples one deteriorated
Radish	23			22	1(235=red round)	
Snake melon	13			13		
Squash	16	2(35, 36)	1(131=pumpkin)	0	13 (all Eskanderani)	
Turnip	14			14 (all Iraquee x balady)		
Watermelon	15			3	12	
White cabbage	22			?		not yet sown

* : numbers between brackets are collection numbers

** : in Wageningen all 5 accessions showed good germination

III Collection from June 17 till July 2, 1986

1. Introduction

As the collection in April-May 1985 was done mainly south of Cairo the collection in June 1986 was done North of Cairo, namely in the Delta area and along the north coast. Again the excursions were organized by the Onion Section and the Vegetable Research department (see under II 1), whereas they were realized in cooperation with individual staff members of these institutions (see III 2, Itinerary).

In spite of some handicaps (June 18 was a free day, June 19 had to be used to meet the Direction of the Field Crops Research Institute and the Horticultural Reserach Institute, all Saturdays had just become free days) a reasonable number of collection trips could be made (see III 2) yielding around 100 balady seed samples (see III 5).

2. Itinerary/Collection program

June 17	Amsterdam-Cairo
June 18	Free day (because of the end of Ramadan?)
June 19	Meeting with the staff of the Onion Section and with the Director of the Field Crops Research Institute (Dr. Abdallah)
June 20	Friday
June 21	free Saturday
June 22	Collection in the Gharbya Governorate, together with Dr. Ahmed El Kafouri of the Onion Section and Mr. Hussein Montaser, insect- and weed-expert of the Agricultural Bureau in Tanta. Meeting Mr. Ahmed Helmey El Kafouri, Director of Agriculture. Collection areas: Qutur/Semella and Bassiun/Kom El Nagar.
June 23	Collection in the Dakhlia Governorate together with Dr. Wafik El Shafie and Dr. Ahmed El Kafouri. Area: North of Aga.
June 24	Travelling via Alexandria along the North coast to Mersa-Matruh together with Dr. Mohammed El Gammal of the Onion Section and Dr. Samir Shosha + Mr. Abd El Monsif of the Vegetable Research Department.
June 25	Meeting: Mr. Mohamed Khairy Hindawy, Director of Agriculture,

- Mr. Mohamed Salah Eldeen Rashdan, Director of Horticulture.
Collection near Mersa-Matruh.
- June 26 Drive back from Mersa-Matruh to Cairo. On the way to Cairo collection in the Behaira Governorate with cooperation of Mr. Mohamed Mady, Horticulturist of the Agricultural Bureau in Damanhour. Collection area: Damanhour.
- June 27 Friday
- June 28 Collection in the Sharquia Governorate in the company of Dr. Fathi Abdelgaber Ahmed of the Onion Section and Mr. Abd El Monsif of the Vegetable Research Department. Meeting in Zagazik with Mr. Samir Fahmy Khalil, Director of Agriculture. Our guide was Mr. Abdelhameed Mohamed Zaki. Collection area: Zagazik/Hoad El Tarfa.
- June 29 Collection in Faiyum in the company of Dr. Samir Shosha of the Vegetable Research Department and Mr. Mohammed Youssef of the Onion Section. Meeting in El Faiyum (city): Mr Aly Yossef Seida, Director of Agriculture. Our guide was Mr. Hanna Gerges. Collection Faiyum city/Ebshoway.
- June 30 Collection in Cairo: Opera Place.
- July 1 Colleciton in Cairo (in the company of Dr. Mohamed El Gammal of the Onion Section) near Islamic Museum.
- July 2 Cairo-Amsterdam

3. Elucidation of the collection program

As mentioned before (Report no II) in Egypt the number of modern foreign and home-made varieties is increasing rapidly. This increase can be observed in the majority of the local seed shops. Nevertheless these shop-keepers are still well-known buyers and sellers of seed surpluses of local strains. So most of the seed shops, even in the Center of Cairo, still have a considerable percentage (in an average perhaps about 20) of balady seed samples and consequently are, even yet, a rich source of balady accessions. Therefore and because collection from farms is much more time consuming, collection from seed shops was accentuated during this mission. All seed samples were paid for on behalf of the Institute for Horticultural Plant Breeding in Wageningen.

Very limited information was available on the growing of vegetable crops (and

their varieties) in the coastal area the Mediterranean. So the trip to Mersah Matruh had to be considered as an exploration trip. Seeds of only a few balady strains could be collected in the immediate surroundings of Mersah Matruh. Local seed shops do not exist. All required non-home-grown seeds seem to be of modern varieties originating from the Delta. In the case of onions transplants (variety Behairy) are bought from the Delta. In this region transplants give the best stability of yield.

At scattered locations in the desert around Mersah-Matruh (e.g. at distances of 20-30 km) balady strains of e.g. melons and water melons are still grown. The same is true for the region West of the city (being a, forbidden, military territory) and for the, even in Mersah-Matruh, far away Oasis of Siwa. Fortunately Mr. Mohamed Salah Eldeen Rashdan, Director of Horticulture for Mersah-Matruh is willing to take care of collecting balady strains from these very remote areas and of sending the seed samples to Dr. Samir Shosha of the Vegetable Research Section.

Although the Egyptian Mediterranean coast-area is mentioned as a habitat of several wild *Allium* species (Mrs. B.E.E. de Wilde-Duyffjes: a revision of the Genus *Allium* L. (Liliaceae) in Africa, 1976) no such material was found. It was mentioned that *Alliums* sometimes occur in cereal fields. However these cereal crops had already been harvested and, very probably, together with them the superterranean parts of the *Alliums*. Mr. Mohamed Salah Eldeen Rashdan was requested to look for wild *Allium* material as well.

Wild water melons were found in two locations along the main road between Alexandria and Mersah-Matruh. Very probably it is a well-know crop in this area. However even this crop seems to be endangered as the young fruits are picked, and sold at the road side (as a remedy for rheumatism).

A very interesting example of the benefit of the conservation of heirloom varieties was the local barley strain 'Maryuti', giving a relatively high yield in a relatively short growing period. This strain was completely lost in an extremely dry year, but it was found back in a gene bank collection in California, wherafter it was reintroduced to Mersah-Matruh.

Dr. Ahmed El Kafouri will make an extra collection trip to Fagus in the Sharquiz Governorate before the end of 1986, because the surroundings of Fagus is an important onion growing area. This place could not be visisted on June 28.

Following the experts of the Agricultural Bureau in Faiyum the growing of balady strains is very exceptional in their Governorate. Nevertheless the seed shop owners claimed many of their seed lots to be balady. In this case

characterization will reveal the truth.

All collected seed samples were divided into two equal parts by the author. One part was left in Egypt and one part was taken by the author with him to Wageningen in order to send it to the destinations as mentioned under 6.3 of Report I.

4. Miscellaneous on collection and accessions

The onion section is willing and capable to function as a donor for the Egyptian balady strains. Their registration- and characterization data will be sent to IBPGR in Rome (address: IBPGR-FAO. Via delle Terme di Caracalla, 00100 Rome, Italy).

Close cooperation with the Center for Genetic Resources Netherlands (CGN) will be appreciated. A first personal contact of Dr. El Shafie and El Kafouri of the Onion Section and Dr. Hardon and Mrs. Ir. Boukema of CGN was made in August 1986 at Wageningen.

The Vegetable Research Section also is willing to send registration- and characterization data to IBPGR and to function as a donor. However the number of balady accessions is rather large whereas up to now no special manpower is available for working on genetic resources. Therefore in the beginning very probably the characterization work will be restricted to only some (priority-) crops, e.g. cucumbers and tomatoes. A special problem is still the proper storage of the seed samples. Fortunately the Gene Bank facilities in Bahteem will be ready very soon so that good storage facilities for all gene bank samples will become available shortly. The Vegetable Section would appreciate close contacts with CGN. A fellowship with a Gene Bank being specialized in Cucurbitaceae would be very welcome.

Although the Egyptian Gene Bank is more or less in 'statu nascendi' it should be kept in mind that it could play an important role in the collection and conservation of balady vegetable strains from the other countries in the African mediterranean area. Undoubtedly these balady strains are disappearing about as rapidly as the Egyptian ones.

5. List of collected samples.

List of collected samples

Collection number	Crop	Collection source	Status	Nearest Town/Village	Governerate
300	Onions	farm	balady	Qutur/Semella	Gharbya
301	"	"	"	" "	"
303	"	"	"	" "	"
304	"	"	"	" "	"
305	"	"	"	" "	"
306	"	"	"	Bassiun/Kom El Nagar	"
307	"	"	"	" "	"
308	"	"	"	" "	"
309	"	"	"	" "	"
310	"	"	"	Aga/El Hessa	Dakhlia
311	"	"	"	Aga/El Kahar	"
312	"	"	"	Aga/Naosa El Eat	"
313	"	"	"	" "	"
314	"	"	"	Mansura/Salka	"
315	"	"	"	" "	"
316	"	"	"	" "	"
317	"	"	"	" "	"
318	"	seed shop	"	" "	"
319	"	"	"	" "	"
339	"	farm	"	Zagazik/Hoad El Tarfa	Sharkia
352	"	market	"	"	"
362	"	seed shop	"	"	"
368	"	"	"	Faiyum	Faiyum
374	"	market	"	"	"
375	"	"	"	"	"
380	"	seed shop	"	"	"
395	"	"	"	Cairo	Cairo
406	"	"	"	"	"
409	"	"	"	"	"
410	"	"	"	"	"
411	"	"	"	"	"
414	"	"	"	"	"
326	kurrat	"	"	Mansura	Dakhlia
361	"	"	"	Zagazik	Sharkia
379	"	"	"	Faiyum	Faiyum
391	"	"	"	Faiyum/Ebshoway	"
404	"	"	"	Cairo	Cairo

Collection number	Crop	Collection source	Status	Nearest Town/Village	Governerate
407	kurrat	seed shop	balady	Cairo	Cairo
408	"	"	"	"	"
413	"	"	"	"	"
405	leeks	"	"	"	"
412	"	"	"	"	"
302	garlic	farm	"	Qutur/Semella	Gharbya
321	white cabbage	seed shop	"	Mansura	Dakhlia
343	"	farm	"	Zagazik/Hoad El Tarfa	Sharkia
357	"	seed shop	"	"	"
367	"	"	"	Faiyum	Faiyum
377	"	"	"	"	"
387	"	"	"	Faiyum/Ebshoway	"
397	"	"	"	Cairo	Cairo
341	cauliflower	farm	"	Zagazik/Hoad El Tarfa	Skarkia
358	"	seed shop	"	"	"
360	"	"	"	"	"
376	"	"	"	Faiyum	Faiyum
384	"	"	"	Faiyum/Ebshoway	"
400	"	"	"	Cairo	Cairo
327	turnip	"	"	Mansura	Dakhlia
335	"	"	"	Damanhour	Behaira
348	"	"	"	Zagazik	Sharkia
356	"	"	"	"	"
369	"	"	"	Faiyum	Faiyum
386	"	"	"	Faiyum/Ebhoway	"
396	"	"	"	Cairo	Cairo
320	radish	"	"	Mansura	Dakhlia
332	"	"	"	Damanhour	Behaira
342	"	farm	"	Zagazik/Hoad El Tarfa	Sharkia
345	"	seed shop	"	"	"
355	"	"	"	"	"
372	"	"	"	Faiyum	Faiyum
392	"	"	"	Faiyum/Ebshoway	"
402	"	"	"	Cairo	Cairo
334	okra	"	"	Damanhour	Behaira
337	"	farm	"	Zagazik/Hoad El Tarfa	Sharkia

Collection number	Crop	Collection source	Status	Nearest Town/Village	Governorate
338	okra	farm	balady	Zagazik/Hoad El Tarfa	Sharkia
346	"	seed shop	"	" "	"
353	"	"	"	" "	"
371	"	"	"	Faiyum	Faiyum
383	"	"	"	"	"
389	"	"	"	Faiym/Ebshoway	"
401	"	"	"	Cairo	Cairo
324	lettuce	"	"	Mansura	Dakhlia
333	"	"	"	Damanhour	Behaira
340	"	farm	"	Zagazik/Hoad El Tarfa	Sharkia
347	"	seed shop	"	"	"
354	"	"	"	"	"
359	"	"	"	"	"
381	"	"	"	Faiyum	Faiyum
390	"	"	"	Faiyum/Ebshoway	"
399	"	"	"	Cairo	Cairo
323	cucumber	"	"	Mansura	Dakhlia
349	"	"	"	Zagazik	Sharkia
364	"	"	"	"	"
393	"	"	"	Cairo	Cairo
322	snake cucumber	seed shop	"	Mansura	Dakhlia
336	"	"	"	Damanhour	Behaira
365	"	"	"	Zagazik	Sharkia
366	"	"	"	"	"
382	"	"	"	Faiyum	Faiyum
385	"	"	"	Faiyum/Ebshoway	"
398	"	"	"	Cairo	Cairo
325	melon	"	"	Mansura	Dakhlia
329	"	farm	"	Mersah Matruh	M. Matruh
344	"	"	"	Zagazik/Hoad El Tarfa	Sharkia
351	"	seed shop	"	"	"
363	"	"	"	"	"
373	"	"	"	Faiyum	Faiyum
378	"	"	"	"	"
388	"	"	"	Faiyum/Ebshoway	"
394	"	"	"	Cairo	Cairo

Collection number	Crop	Collection Source	Status	Nearest Town/Village	Governerate
328	water melon	farm	balady	Mersah Matruh	M. Matruh
403	"	seed shop	"	Cairo	Cairo
350	squash	"	"	Zagazik	Sharkia
370	"	"	variety	Faiyum	Faiyum
330	citrullus colocyntis	road side	wild	Mersah Matruh	M. Matruh
331	"	"	wild	" "	" "

EUROPEAN ALLIUM DATABASE

It was agreed that all available information should be provided, following the IBPGR descriptor list.^{1/} A minimum number of descriptors was selected which must be provided for A. cepa, A. sativum, A. ampeloprasum and A. fistulosum.

Minimum data to be provided for:

<u>A. cepa</u>	<u>A. sativum</u>	<u>A. ampeloprasum/A. fistulosum</u>
3.1 (5.1)	3.1 (5.1)	3.1 (5.1)
3.2 (5.2)	3.2 (5.2)	3.2 (5.2)
3.3 (5.3)	3.3 (5.3)	3.3 (5.3)
3.4 (5.4)	3.4 (5.4)	3.4 (5.4)
3.5 (5.5)	3.5 (5.5)	3.5 (5.5)
4.1.3	4.1.3	4.1.1
4.1.10	4.1.7	4.1.3
4.1.11	4.1.12	
4.1.12	4.1.14	
4.2.2	4.2.1	
4.2.5		
4.2.6		
5.6	5.6	5.6
6.1.1	6.1.2	6.1.4
6.1.2	6.1.8	6.1.5
6.1.7	6.2.4	6.2.6
6.1.8		
6.2.3		
6.2.4		
6.2.6		
	7.1	7.1
		7.2

^{1/} The numbering follows the IBPGR descriptor list for Allium species, which provides detailed information for completion of data.