

Promoting the implementation and the establishment of the European MAP Collection (MAPEUROCOLLECTION)

Final Activity Report

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February 2022

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Barata A M, Lopes V, Smékalová K, Fusani P, Sivicka I, Radušienė J, Šveistytė L, Batir D, Gosztola B, Thomsen M G, Baričević D, Ferant N. 2022. Promoting the implementation and the establishment of the European MAP Collection (MAPEUROCOLLECTION). Final Activity Report. European Cooperative Programme for Plant Genetic Resources, Rome, Italy.

Photograph: Participants in the meeting of the MAP EUROLLECTION, 27–28 April 2017, Braga, Portugal. Credit: Madalena Vaz – BPGV/INIIV

1. INTRODUCTION

The Food and Agriculture Organization of the UN (FAO) in its *Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture (2010)*, as far as global germplasm holdings are concerned, shows that a total of 160,050 accessions of medicinal, aromatic, spice and stimulant crops are maintained in genebanks worldwide, while botanical gardens, globally, have about 1,800 medicinal plant taxa represented in their collections.

In Europe, at least 2,000 Medicinal and Aromatic Plants (MAP) taxa are used on a commercial basis. Of these, two thirds (1,200-1,300) of the species are native to Europe. The countries involved in the MAP Working Group have previously reported a total of **23,480 accessions** maintained *ex situ*. From those, **4,624 accessions** of ten priority species were chosen as models. For these taxa – *Achillea millefolium*; *Artemisia absinthium*; *Carum carvi*; *Gentiana lutea*; *Hypericum perforatum*; *Mentha piperita* and *M. spicata*; *Melissa officinalis*; *Origanum* spp.; *Salvia officinalis*; *Thymus vulgaris* and *T. serpyllum* – species-specific descriptors were proposed and are available on the [MAP Working Group \(WG\) webpage](#).

[The European Collection](#), with 28,686 European accessions, only reports **82 as MAP species**. Therefore, the effort to increment the number of MAP accessions in the European Collection is of major importance.

In the context of the MAPEUROCOLLECTION proposal, WG members were encouraged to start identifying accessions to be flagged as part of AEGIS to increase the European MAP Collection.

While the [interim report](#) provided information on actions implemented during the first stage, this final report includes updates covering the next steps and the regeneration/multiplication activities carried out to constitute the European MAP Collection.

2. MEETING AND OUTCOMES

A two-day meeting was held on 27–28 April 2017, hosted by Banco Português de Germoplasma Vegetal - INIAV in Braga, Portugal, to assess the progress of the national MAP collections, their conservation status and documentation, agree on the criteria for including accessions in the European Collection, revise the crop-specific standards for orthodox seeds, considering the AEGIS Quality System, and discuss and propose the work plan for the necessary activities and rules of management of the accessions in accordance with the AEGIS principles.

Participants from the Czech Republic, Hungary, Italy, Latvia, Lithuania, Norway, Portugal, Romania and Slovenia attended this meeting.

The Portuguese National Coordinator, addressing the opening session, presented the policy context of plant genetic resources and the National Programme for Plant Genetic Resources in Portugal. Also, Lorenzo Maggioni (ECPGR Secretary), presented the [ECPGR context and latest updates](#).

2.1. Progress and update of national MAP conservation

The last inventory for MAP species dated back to the previous WG meeting, held in 2009. During the 2017 meeting, WG members provided an update on National Inventories and MAP collection status with individual in-country reports from:

- The Czech Republic (Kateřina Smékalová)
- Italy (Pietro Fusani)
- Latvia (Irina Sivicka)
- Lithuania (Jolita Radušienė and Laima Šveistytė)
- Hungary (Beáta Gosztola)
- Norway (Mette Goul Thomsen)
- Portugal (Violeta Lopes)
- Romania (Diana Batir)
- Slovenia (Dea Baričevič and Nataša Ferant).

[Country report updates](#) showed conservation improvements of *ex situ* and *in situ* conservation of MAP species in Europe. However, despite important activities reported in this group of species, in some countries, the fragmentation among institutions working on this subject is hampering the integration of results. In addition, the sustainable management of MAP genetic resources is still limited.

2.2. Criteria for accession inclusion in the European Collection

The major goal of this meeting was to select and approve the criteria to identify accessions for the European MAP Collection. During the meeting, the criteria for inclusion of accessions in the (AEGIS) European Collection were proposed, discussed and agreed upon.

The 13 WG members discussed the current situation of European MAP in the context of *ex situ* and *in situ* conservation, characterization and evaluation and the respective number of accessions was updated. The European Collection of flagged MAP priority species in AEGIS consisted of **82 accessions** from the Nordic countries, Germany and Romania.

As of 24 April 2017, the EURISCO catalogue showed **2,923 accessions** for the **10 MAP priority species** (Table 1) and the number of countries contributing to *ex situ* conservation of the priority species ranged, depending on the species, between 1 and 22 (Table 2). As an example, and as shown in Table 1 and Table 2, 22 countries were contributing to *ex situ* conservation of *Hypericum perforatum* with 591 accessions, while only one country contributed to the conservation of *Achillea millefolium* with a single accession.

An increase in morphological and chemical characterization and evaluation has been reported, although smaller than desired, owing to the reduced availability of human and financial resources. Molecular evaluation is not so common in this group of species.

Evaluation and characterization can be promoted to increment the sustainable use of MAP species in Europe, as these groups of plants have a strong demand for several uses and support different agricultural production systems. However, the market continues to be provisioned to a large extent by collecting from the wild and therefore *ex situ* and *in situ* conservation are vital for the sustainable utilization and conservation of these plant genetic resources.

There are opportunities to expand the European MAP collection with more accessions, as EURISCO indicates that these collections are consolidated and documented. It is expected to increase the number of AEGIS MAP accessions and the quality, quantity and availability of MAP data in EURISCO.

Table 1. Total number of accessions for the 10 priority species in EURISCO (Accessed on 24.04.2017)

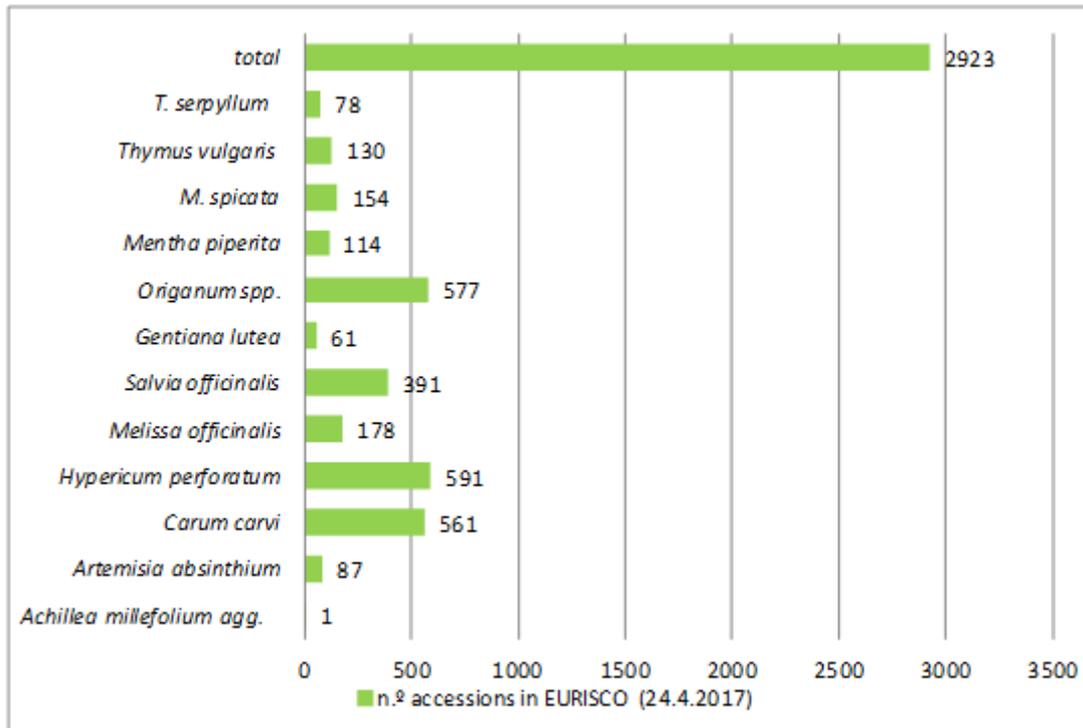
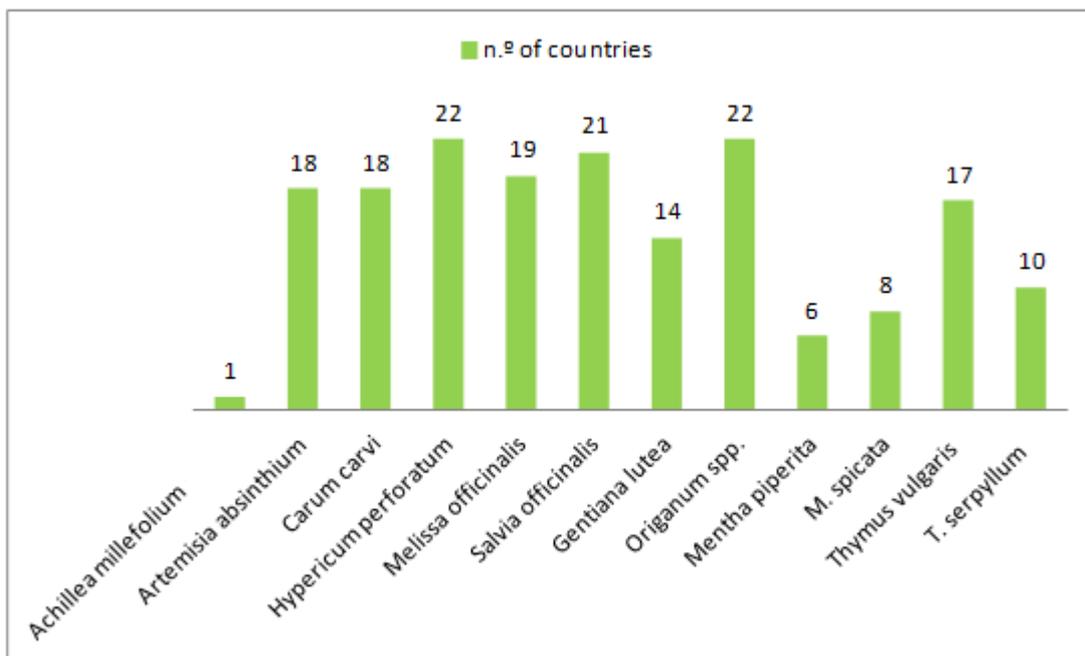


Table 2. Number of countries conserving the 10 priority species in EURISCO (Accessed on 24.04.2017)



2.2.1. European Collection

The WG decided to focus on the 11 priority species identified by the WG and only on seed-propagated species.

Each WG member will have to provide their National Coordinator with the list of recommended accessions for consideration and formal inclusion in the European MAP Collection. The EURISCO National Focal Point, from each country, after consultation with the National Coordinator, will include these accessions in the EURISCO database and flag them as AEGIS, European Collection.

According to WG members, the most important difficulties limiting the flagging of MAP accessions for AEGIS, besides institution coordination and logistics, are financial fragilities and lack of funding.

Most of the MAP WG members who participated in this meeting had not yet defined AEGIS candidate accessions. Therefore, the major task consists in the identification of eligible MAP AEGIS candidate accessions of the priority species, within each updated national inventory.

2.2.2. Approved selection criteria to include MAP accessions in the European Collection

The criteria for the inclusion of MAP accessions in the European Collection were discussed and approved, as follows:

- National origin
- Wild populations or landraces or obsolete cultivars
- EURISCO minimum passport data available (national inventory code, institute code, accession number and genus)
- AEGIS minimum passport data available (species, country of origin, sample status, collecting source, accession name for cultivars, others if possible)
- Availability for users
- Long-term conservation conditions
- 75% minimum germination value for cultivated accessions or lower for wild materials
- Number of (viable/germinating) seeds available – cross-pollinated species, recommended size: 2,000 viable seeds in long-term conservation
- Number of plants necessary for regeneration, recommended size: minimum 30–60 plants.

2.3. Crop-specific standards for orthodox seeds

The crop-specific standards to be used for orthodox seeds as part of the AEGIS Quality System were also revised. Based on the accumulated experience with the use of priority species descriptors, the group decided to start a revision and update process, including the finalization of missing descriptors for *Achillea millefolium*, *Artemisia absinthium* and *Gentiana lutea*.

In the near future, information on characterization and evaluation should also be made available: morphology; phenology; chemical composition of main compounds (essential oils, phenolic compounds, others); resistance to pests and diseases; molecular data.

Crop-specific standards for conservation of MAP orthodox seeds

- Germination (germination requirements according to standards):
 - Wild species with low germination (about 50%)
 - Cultivated species with high germination (>75%)

- Recommended size of the accession:
 - Cross-pollinated species: 10,000 seeds
 - Self-pollinated species: 5,000 seeds

3. REGENERATION AND ACCESSIONS SELECTION FOR AEGIS – Country proposal

Due to several constraints, from the total countries that participated in the meeting in 2017, it was only possible to involve four countries (Bulgaria, Germany, Portugal and Romania) in the establishment of the European MAP Collection.

The activity allowed not only the identification of the accessions that will enter the European MAP Collection as part of AEGIS from the participating countries but also the multiplication, regeneration and safety duplication of some MAP species.

The criteria to include MAP accessions in the European Collection and the crop-specific conservation standards for orthodox seeds, followed points 2.2.2 and 2.3 of this report, respectively.

3.1. Bulgaria

During 2019, eight accessions were collected (see Annex 1) and the data is already included in the EURISCO database.

Also, during this period, 21 accessions have been multiplied, following all the necessary agrotechnical measures for proper cultivation: *Melissa officinalis* (1); *Origanum vulgare* (2); *Sideritis scardica* (2); *Mentha* sp. (1); *Papaver somniferum* (5), *Verbascum* sp. (6); *Carum carvi* (1); *Salvia sclarea* (3). All accessions have germinated and grown normally, and seeds have been collected from all of them. However, the multiplication continues in order to obtain enough seed to accomplish the criteria for inclusion in the European Collection.

Safety duplication of these 21 accessions has not yet been done, because *Papaver* in Bulgaria is under special regulations, so the provision of seeds is only possible under a special authorization issued by the relevant authorities. The seeds from the remaining species will be sent, as a duplicate, to the Svalbard Seed Vault.

All accessions have their information in the EURISCO Catalogue and seven of them can be included in AEGIS, as shown in Table 3: *Carum carvi* and *Salvia sclarea*, *Verbascum nobile*, *Verbascum* sp. and *Sideritis scardica*.

Origanum vulgare L. accession (BRG 39628) could not be flagged for AEGIS, because it is not of Bulgarian origin.

Table 3. Species and accession identification from Bulgaria flagged as part of AEGIS

Species	Accession number
<i>Carum carvi</i>	BGR 21521
<i>Salvia sclarea</i>	BGR 22716
<i>Salvia sclarea</i>	BGR 39333
<i>Salvia sclarea</i>	BGR 39924
<i>Verbascum nobile</i>	BGR 29759
<i>Verbascum</i> sp.	BGR 29760
<i>Sideritis scardica</i>	BGR 39361

3.2. Germany

The actions carried out by Germany at IPK were as follows. During 2019, multiplication of 34 accessions of the following species was performed: *Achillea millefolium* (3), *Carum carvi* (4), *Artemisia absinthium* (3), *Hypericum perforatum* (5) *Melissa officinalis* (4), *Origanum* spp. (5), *Salvia officinalis* (4), *Thymus* spp. (6). After a successful harvest, safety duplicates of the above accessions were sent to the Svalbard Global Seed Vault.

The list of accessions to be included into AEGIS, with the updated Multi-Crop Passport Descriptors (MCPD) data, was provided to the EURISCO National Inventory Focal Point. Follow-up will be carried out with EURISCO National Inventory Focal Point to ensure that accessions are effectively included in EURISCO and flagged as part of AEGIS.

3.2.1. Multiplication of genebank material and safety duplication

In 2019, 33 accessions of selected species (Table 1) were cultivated in Gatersleben to produce fresh seed material. Thirty-one accessions could be harvested in the autumn of 2019. For most of the material, the amount of seeds was high enough to split them into active and base samples. Nearly all accessions have already or will get a safety duplicate in Svalbard. However, 11 samples did not produce enough seeds due to the dry and hot weather conditions during the summer. These accessions are perennial; they were planned to be harvested in 2020. In addition, nine accessions of the same genera were regenerated (Table 2).

Table 4. Number of accessions and species cultivated in Gatersleben in 2019

Species	No. of accessions	Species	No. of accessions
<i>Achillea millefolium</i>	3	<i>Melissa officinalis</i>	4
<i>Achillea</i> spp.	2	<i>Origanum</i> spp.	5
<i>Artemisia absinthium</i>	3	<i>Salvia officinalis</i>	4
<i>Carum carvi</i>	5	<i>Salvia</i> spp.	5
<i>Hypericum perforatum</i>	3	<i>Thymus</i> spp.	6
<i>Hypericum</i> spp.	2	Total	42

3.2.2. Update of national inventory

Seven thousand and eighteen (7,018) MAP accessions were identified as AEGIS candidates based on the “German approach”.

The accession list was expected to be sent to the National Focal Point in early 2020. After selection, the material will be flagged as AEGIS accessions in EURISCO.

3.3. Portugal

Following the meeting held in Portugal in 2018 and the Interim Activity Report, Portugal started the identification of the accessions that should enter the European MAP Collection and the regeneration of those that did not yet meet the requirements for that purpose.

The criteria to include MAP accessions in the European Collection and crop-specific conservation standards for orthodox seeds followed the proposal described in the [interim report](#) and the [MAP WG reports](#).

3.3.1. Identification of the accessions to the EUROPEAN MAP COLLECTION as part of AEGIS

Ninety-eight accessions from the Portuguese MAP collection were identified as possible candidates to enter the European Collection. The Portuguese MAP collection conserves 1,238 accessions, which are mainly of wild origin (943 accessions) and the remaining are cultivated, with the botanical families Lamiaceae and Apiaceae, more represented. The list of priority species agreed by the WG was taken into account to the extent of its representation in the Portuguese collection.

The application of conservation standards defined for orthodox seeds made clear the need to multiply/regenerate 30 accessions, out of a list of 98, as indicated in Table 5.

Table 5. List of species and number of accessions identified as candidates to AEGIS

Species	No. of accessions	Species	No. of accessions
<i>Apium nodiflorum</i>	2	<i>Origanum vulgare subsp. virens</i>	5
<i>Apium graveolens</i>	1	<i>Thymus caespititius</i>	8
<i>Foeniculum vulgare</i>	38	<i>Thymus mastichina</i>	4
<i>Hypericum androsaemum</i>	6	<i>Thymus pulegioides</i>	2
<i>Hypericum perforatum</i>	1	<i>Thymus vulgaris</i>	1
<i>Mellissa officinalis</i>	1	<i>Thymus zygis</i>	1
<i>Mentha pulegium</i>	28	TOTAL	98

Of the 30 accessions from the 12 species in the regeneration/multiplication work plan, 10 species were successfully regenerated, corresponding to 19 accessions (Table 6).

Table 6. List of accessions regenerated in 2019

Taxon	Accession number	Taxon	Accession number
<i>Apium graveolens</i>	BPGV08882	<i>Origanum virens</i>	BPGV10403
<i>Apium nodiflorum</i>	BPGV08900	<i>Origanum virens</i>	BPGV10423
<i>Apium nodiflorum</i>	BPGV08904	<i>Thymus caespititius</i>	BPGV08590
<i>Hypericum androsaemum</i>	BPGV08906	<i>Thymus mastichina</i>	BPGV10381
<i>Hypericum androsaemum</i>	BPGV08909	<i>Thymus mastichina</i>	BPGV10384
<i>Melissa officinalis</i>	BPGV12977	<i>Thymus mastichina</i>	BPGV11264
<i>Mentha pulegium</i>	BPGV08453	<i>Thymus mastichina</i>	BPGV12078
<i>Mentha pulegium</i>	BPGV10427	<i>Thymus vulgaris</i>	BPGV09915
<i>Origanum virens</i>	BPGV09877	<i>Thymus zygis</i>	BPGV12136
<i>Origanum virens</i>	BPGV09914		

The unique accessions from the Portuguese MAP collection proposed for inclusion into the AEGIS European MAP Collection are 86 candidates, as described in Table 7.

Table 7. List of accessions to be included in the European MAP Collection

Taxon	No. of accessions	Taxon	No. of accessions
<i>Apium nodiflorum</i>	2	<i>Origanum vulgare subsp. virens</i>	4
<i>Apium graveolens</i>	1	<i>Thymus caespititius</i>	5
<i>Foeniculum vulgare</i>	38	<i>Thymus mastichina</i>	4
<i>Hypericum androsaemum</i>	2	<i>Thymus vulgaris</i>	1
<i>Melissa officinalis</i>	1	<i>Thymus zygis</i>	1
<i>Mentha pulegium</i>	27	TOTAL	86

3.4. Romania

Romania regenerated 106 accessions for inclusion in the European MAP Collection, according to Table 8.

Table 8. List of accessions regenerated in 2019

GENUS	SPECIES	SPAUTH	No. of accessions
<i>Anethum</i>	<i>graveolens</i>	L.	2
<i>Brassica</i>	<i>nigra</i>	(L.) W. D. J. Koch	1
<i>Calendula</i>	<i>officinalis</i>	L.	10
<i>Carthamus</i>	<i>tinctorius</i>	L.	1
<i>Cassia</i>	<i>angustifolia</i>	Vahl.	1
<i>Coriandrum</i>	<i>sativum</i>	L.	6
<i>Datura</i>	<i>stramonium</i>	L.	1
<i>Digitalis</i>	<i>ferruginea</i>	L.	1
<i>Dracocephalum</i>	<i>moldavica</i>	L.	3
<i>Echinacea</i>	<i>purpurea</i>	(L.) Moench.	2
<i>Foeniculum</i>	<i>vulgare</i>	Miller	4
<i>Galium</i>	<i>verum</i>	L.	1
<i>Glaucium</i>	<i>flavum</i>	Crantz.	1
<i>Hibiscus</i>	<i>esculentus</i>	(L.) Moench	1
<i>Hyoscyamus</i>	<i>niger</i>	L.	2
<i>Hypericum</i>	<i>perforatum</i>	L.	1
<i>Hyssopus</i>	<i>officinalis</i>	L.	1
<i>Levisticum</i>	<i>officinale</i>	W. D. J. Koch.	3
<i>Melilotus</i>	<i>albus</i>	Medik.	1
<i>Melissa</i>	<i>officinalis</i>	L.	1
<i>Nigella</i>	<i>damascena</i>	L.	1
<i>Nigella</i>	<i>sativa</i>	L.	8
<i>Ocimum</i>	<i>basilicum</i>	L.	9
<i>Ocimum</i>	<i>tenuiflorum</i>	L.	1
<i>Origanum</i>	<i>vulgare</i>	L.	1
<i>Papaver</i>	<i>somniferum</i>	L.	17
<i>Pimpinella</i>	<i>anisum</i>	L.	1
<i>Plantago</i>	<i>lanceolata</i>	L.	1
<i>Rumex</i>	<i>acetosa</i>	L.	1
<i>Rumex</i>	<i>patientia</i>	L.	1
<i>Salvia</i>	<i>officinalis</i>	L.	1
<i>Satureja</i>	<i>hortensis</i>	L.	11
<i>Silybum</i>	<i>marianum</i>	(L.) Gaertn.	2
<i>Sinapis</i>	<i>alba</i>	L.	3
<i>Tagetes</i>	<i>patula</i>	L.	1
<i>Trigonella</i>	<i>foenum-graecum</i>	L.	2
<i>Trigonella</i>	<i>caerulea</i>	(L.) Ser.	1
Total			106

4. MAPEUROCOLLECTION PROPOSAL

Table 9. MAPEUROCOLLECTION: Proposal of species and number of accessions by country

Taxon	Portugal	Bulgaria	Romania	Germany
<i>Achillea millefolium</i> L.				3
<i>Achillea</i> spp.				2
<i>Anethum graveolens</i> L.			2	
<i>Apium graveolens</i> L.	1			
<i>Apium nodiflorum</i> (L.) Lag.	2			
<i>Artemisia absinthium</i> L.				3
<i>Brassica nigra</i> (L.) W. D. J. Koch			1	
<i>Calendula officinalis</i> L.			10	
<i>Carthamus tinctorius</i> L.			1	
<i>Carum carvi</i> L.		1		5
<i>Cassia angustifolia</i> Vahl.			1	
<i>Coriandrum sativum</i> L.			6	
<i>Datura stramonium</i> L.			1	
<i>Digitalis ferruginea</i> L.			1	
<i>Dracocephalum moldavica</i> L.			3	
<i>Echinacea purpurea</i> (L.) Moench			2	
<i>Foeniculum vulgare</i> Miller	38		4	
<i>Galium verum</i> L.			1	
<i>Glaucium flavum</i> Crantz			1	
<i>Hibicus esculentus</i> (L.) Moench			1	
<i>Hyoscyamus niger</i> L.			2	
<i>Hypericum androsaemum</i> L.	2			
<i>Hypericum perforatum</i> L.			1	3
<i>Hypericum</i> spp.				2
<i>Hyssopus officinalis</i> L.			1	
<i>Levisticum officinale</i> W.D.J.Koch.			3	
<i>Melilotus albus</i> Medik.			1	
<i>Melissa officinalis</i> L.	1		1	4
<i>Mentha pulegium</i> L.	27			
<i>Nigella damascena</i> L.			1	
<i>Nigella sativa</i> L.			8	
<i>Ocimum basilicum</i> L.			9	
<i>Ocimum tenuiflorum</i> L.			1	
<i>Origanum</i> spp.				5
<i>Origanum vulgare</i> subsp. <i>virens</i> (Hoffmanns. & Link) Bonnier & Layens	4		1	
<i>Papaver somniferum</i> L.			17	

<i>Pimpinella anisum</i> L.			1	
<i>Plantago lanceolata</i> L.			1	
<i>Rumex acetosa</i> L.			1	
<i>Rumex patientia</i> L.			1	
<i>Salvia officinalis</i> L.			1	4
<i>Salvia sclarea</i> L.		3		
<i>Salvia</i> spp.				5
<i>Satureja hortensis</i> L.			11	
<i>Sideritis scardica</i> Griseb.		1		
<i>Silybum marianum</i> (L.) Gaertn			2	
<i>Sinapis alba</i> L.			3	
<i>Tagetes patula</i> L.			1	
<i>Thymus caespitius</i> Brot.	5			
<i>Thymus mastichina</i> L.	4			
<i>Thymus</i> spp.				6
<i>Thymus vulgaris</i> L.	1			
<i>Thymus zygis</i> L.	1			
<i>Trigonella caerulea</i> (L.) Ser.			1	
<i>Trigonella foenum-graecum</i> L.			2	
<i>Verbascum nobile</i> Velen.		1		
<i>Verbascum</i> spp.		1		
TOTAL_ country	86	7	106	42
TOTAL	241			

MAPEUROCOLLECTION will enter **241 new accessions** in the European Collection, from the four participating countries.

5. CONCLUSION

Due to the possibility of using some of the remaining funds for the multiplication and regeneration of the accessions to be included in the European MAP Collection, the Activity was extended until December 2019, as explained earlier, with a budget revision for field activities.

In conclusion, the Activity partners applied the approved criteria for accessions' inclusion in the European Collection to their MAP collection and made use of remaining available funds for the multiplication/regeneration of candidate AEGIS accessions.

From the nine countries that initially participated in the activity and were interested in multiplying MAP accessions and including them in AEGIS, the ECPGR Secretariat was only able to establish contractual agreements with four: Bulgaria, Germany, Portugal and Romania, while the other countries declined or were not able to sign the necessary documents to get financial support for these activities.

In conclusion, 241 accessions from 57 species will be included in the European MAP Collection as part of AEGIS from Bulgaria, Germany, Portugal and Romania.

The MAP Working Group is still considering carrying out follow-up tasks as listed below:

- Expand the original priority list of MAP species identified by the WG members to show the existence of some common regional strategies and priorities. This expanded priority list should reflect the level of threat and the Red List status of MAP species in Europe and support the Strategy for European MAP Conservation.
- Carry out systematic actions for documentation of *ex situ* collections and *in situ* populations: information organized according to EURISCO.
- Compile systematic information that contains key aspects of the MAP species [e.g. annual or perennial species; type of seed (orthodox, intermediate, recalcitrant); optimum germination conditions; optimum storage conditions; in- or out-breeding; most appropriate technique of propagation and key aspects to field collection conservation].
- Identify other opportunities for cooperation and integration between WG members and other WGs: i) Increase the effort for *in situ* conservation; ii) Explore potential of *in vitro* or cryopreservation methods to improve the status of conservation and safety-duplication of MAP species;
- Coordinate the expertise available in the respective pool of experts to resolve specific technical issues that might evolve as part of the WG operation.

Annex 1. Collected MAP accessions during 2019

Icode	Instcode	Accnumb	Collnumb	Collcode	Collname	Genus	Species	Spauthor			
BGR	BGR001	2019-TRG-1	B9E0052	BGR001	Institute for Plant Genetic Resources 'K.Malkov'	<i>Trigonella</i>					
BGR	BGR001	2019-OCI-BS-1	B9E0061	BGR001	Institute for Plant Genetic Resources 'K.Malkov'	<i>Ocimum</i>	<i>basilicum</i>	L.			
BGR	BGR001	2021-TUS-FA-1	C1E0001	BGR001	Institute for Plant Genetic Resources 'K.Malkov'	<i>Tussilago</i>	<i>farfara</i>				
BGR	BGR001	2021-LUP-AL-1	C1E0002	BGR001	Institute for Plant Genetic Resources 'K.Malkov'	<i>Lupinus</i>	<i>albus</i>	L.			
BGR	BGR001	2021-VRT-LO-1	C1E0003	BGR001	Institute for Plant Genetic Resources 'K.Malkov'	<i>Veratrum</i>	<i>lobelianum</i>				
BGR	BGR001	2021-ASD-AL-1	C1E0004	BGR001	Institute for Plant Genetic Resources 'K.Malkov'	<i>Asphodellus</i>	<i>albus</i>				
BGR	BGR001	2021-DI-AL-1	C1E0005	BGR001	Institute for Plant Genetic Resources 'K.Malkov'	<i>Dictamnus</i>	<i>albus</i>	L.			
BGR	BGR001	2021-LAU-NO-1	C1E0006	BGR001	Institute for Plant Genetic Resources 'K.Malkov'	<i>Laurus</i>	<i>nobilis</i>	L.			
Accnumb	Acce name	Acqdate	Origcty	Collsite	Latitude	Longitude	Eleva tion	Colldate	Samp stat	Coll src	Stor age
2019-TRG-1	Local	20190000	BGR	v.Indje vojvoda, Sozopol, obl. Burgas	424813N	0272507E	297	20190926	300	20	12
2019-OCI-BS-1	Local	20190000	BGR	v.Indje vojvoda, Sozopol, obl. Burgas	424813N	0272507E	297	20190926	300	20	12
2021-TUS-FA-1	Local	20210000	BGR	v. Luben, Piasachnik	426017N	0244844E	257	20190500	100	12	12
2021-LUP-AL-1	Local	20210000	BGR	v. Luben, Piasachnik	426017N	0244844E	257	20190500	100	12	12
2021-VRT-LO-1	Local	20210000	BGR	v. Luben, Piasachnik	426017N	0244844E	257	20190500	100	12	12
2021-ASD-AL-1	Local	20210000	BGR	v. Luben, Piasachnik	426017N	0244844E	257	20190500	100	12	12
2021-DI-AL-1	Local	20210000	BGR	v. Luben, Piasachnik	426017N	0244844E	257	20190500	100	12	12
2021-LAU-NO-1	Local	20210000	BGR	v. Luben, Piasachnik	426017N	0244844E	257	20190500	100	12	12