



## Forest Plants wild harvesting Learning in Europe ( Plant Wild)

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Banco Português de Germoplasma Vegetal



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15 de Maio de 2012



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Forest Plants  
Harvesting  
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## MAP in Portugal

### MAP

has been considered a sub-sector in the Portuguese agriculture system, which was acknowledged in the nineties of last century and has increased since 2003.

In spite of the efforts, even today there are significant knowledge gaps in several areas.



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Domestic demand is more significant for fresh material to seasoning, flavouring and for salads. This type of demand is closely related to the culinary traditions.

Until now, the production was under conventional farming, but recently organic production takes the lead providing quality products as recommended by the guidelines of good agricultural practices and **harvesting of medicinal plants**.



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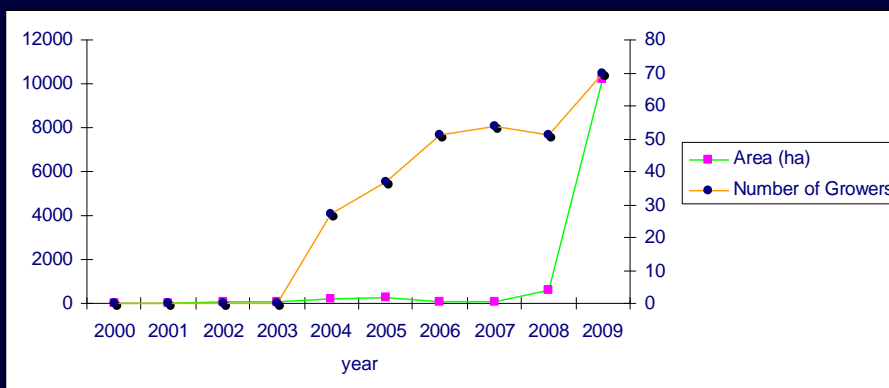


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Medicinal and aromatic plants organic production area and number of growers for the period 1994 to 2009, in Portugal.



Fonte



## Cultivation

will respond to the market needs and,  
avoids the dilapidation of natural resources.

There are relevant advantages of cultivation, in  
comparison for wild harvest



## Cultivation

- Cultivation provides a reliable botanical identity;
- The guaranty of a steady supply of raw material;
- Allows harvest and post harvest quality control;
- Allows checking product standards in accordance to regulations;
- Allows crop certification - example for organic production;
- May offer the opportunity for domestication of MAP species;
- Gives the possibility of agreement between wholesalers on production volume and prices over time.



## Cultivation vs gathering

The increase demand for these plants has resulted, in most cases, in an **indiscriminate** and **intensive harvesting** of wild populations which in turn has contributed to

### GENETIC EROSION and DEGRADATION of ECOSYSTEMS

It is even more serious for bark, roots, seeds and flowers, essential parts of the survival of plants when it is collected, as collectors, in most cases, **have no knowledge about the morphology and phenology of the species.**



## Traditional knowledge

Rural communities are a source of TK:

- Collectors, important agents in the MAP sector of Portugal, came from these rural communities.
- TK in general and MAP in particular, is held by women.
- TK is held, predominantly, by older people (60 to 80 years old).
- People with knowledge on the identification and use of MAP have low level of formal education.






- ❖ Religious orders of the Catholic Portuguese Church
  - ✚ 1704 the first pharmacopeia in Portuguese  
Caetano de Santo António
- ❖ In 2008 the Portuguese Farmacopeia IX was published
- ❖ Chemical approach, such as constituents' content, their control, pharmacology and use  
Prof. António Proença da Cunha
- ❖ **Systematic genetic resources collecting and conservation is more recent**
- ❖ Studies of wild collecting impacts to MAP wild flora have been mostly done in endemic flora inside natural parks







- Overall**
- Portuguese growers lack an easy access to MAP production information, from plant science and agronomic studies and access to certified laboratories.
- There is a consensus among researchers, industrial and environmental organizations, about the need of initiatives to reduce the pressure on the environment and the conservation of genetic resources.




Overall

Essential to create an effective management and reporting system:

- for each species, the amount that can be collected annually in nature,
- seasonal or geographical restrictions can be considered
- restrictions of collecting of particular plant parts

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Overall

Need and importance of the continuing documentation of plant species as well as the traditional knowledge associated to identification, conservation and uses.

Local networks, based on trained man-power and on improved and diversified plant production.

The MAP training and knowledge transfer, important instruments to develop the purposes and needs of

**MAP in Portugal**

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## Supporting Programmes for Training

### I AND II QCA (1990-1999)

**Formal teaching** (Ministry of Education)

Secondary schools

Professional schools

**Professional training centres** Labour Ministry vs other ministries

including the Agriculture Ministry



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### I AND II QCA (1990-1999)

Formal teaching

✓ Initial training

**1994-1995** 1,962 students and in the area of  
environment and natural resources, 1,228 trainees.

✓ Learning actions

**1991 - 1996** 378 Training courses --- 5.065 students.

✓ Lifelong learning

1,513 learners in in agro-food, agriculture and sea domain.



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**I AND II QCA (1990-1999)**

- Formal teaching  
in professional technical courses
- ✓ 226 Courses during this ten years period
- ✓ 12,123 Learners registered in professional schools in  
Agrifood production
- ✓ 159 professionals' schools, while 64% of these are  
located in the North and Center, 24% in Lisbon and  
11% in Alentejo and Algarve.



**I AND II QCA (1990-1999)**


Agriculture Ministry      Lifelong learning

- Over the period of 10 years (1989-1999), were annually engaged in  
training interventions and continuously training an average of about  
9,800 students.
- The initial training in agricultural sector had the objective of  
empower young people that wanted to be farmers.

**1994 to 1996** - 312 training actions - 5,329 learners.

- **50% to 60%** from all trainees - 25 and 44 years old
- **30% to 36%** from all trainees - 15 and 24 years old
- The participation rate men and women in training is 46% -50%.





**I AND II QCA (1990-1999)**

**North Region** absorbed significantly the effort of training, as proven by the creation of IDARN

**1991 and 1995** - 9,461 hours of training, 111 actions to 1,812 learners

To support I&ED - 47 actions covering different areas and among them were included two actions specific to PAM and included 34 students.



**QCA III (2000-2006)**

Training included in AGRO Program, MEASURE 7 and Axis 2

Three Actions:

- Qualification and Reorientation Training (7.1)
- Training of Trainers, Scientific & Technical Staff (7.2)
- System training (7.3)




**QCA III (2000-2006)**

The North Region represented:

- ❑ 60.3%, of the total number of training actions
- Higher % of active population in agriculture and a more dynamic training in the region
- ❑ 63,5% from a total of 92,7 % Qualification and Reorientation Training
- ❑ Publication of "Technical Manual" and "Diagnosis of Training Needs."
- ❑ More frequent group of **25-45 years** – and mostly women


**and second more frequent group of 45-65 years**



**QCA III (2000-2006) – North Region - EDM**

- a. 3,074 training actions were held for 48,305 learners
- b. Cooperatives and agricultural associations - Promoters.
- c. 339 training actions for Edible and ornamental horticulture - 38 organic farming.
- d. The main motivation – modernization agriculture
- e. Actions related to the environment, sustainable development, diversification of the rural economy were forgotten.
- f. The planning of professional training in the region had no direct relationship with the main agricultural and livestock activities in the territory. The Ministry was absent in the promotion of training.

“training referees were developed for the major regional agriculture activities “ - horticulture production and MAP production



**QCA IV (2000-2006)**


Main axis from the seven POPH axis with opportunities to MAP training:

**Axis 1** Initial qualification;

**Axis 2** Fitness and lifelong learning, has as main objective the improvement of qualification of the adult working population - employed and unemployed. develop critical skills for business and economic modernization, as well as contribute to the adaptability of workers;

**Axis 3** Management and professional improvement ;

**Axis 6** –"Local Contract for Social Development" for areas with higher rates of social exclusion or more depressed and aged (municipalities of the interior), or areas hard hit by natural disasters, making the territories more inclusive.



**Conclusions**

- I. The North Region is the most representative
- II. Main motivation - modernization of agricultural production
- III. Planning of professional training in the region had no direct relationship with the main agricultural and livestock activities in the territory.
- IV. Professional training depends of local associations dynamics
- V. The Agriculture Ministry produced "training referees" and it has the regular and certification rules, but didn't promote thematic of training.

**MAP training was forgotten.**

The gaps of MAP training were fulfilled by civil society.



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MAP TRAINING

A questionnaire was elaborated and sent to all the entities, at a national level, that could be involved in MAP training.

Departamento de Formação Profissional de Plantas Aromáticas e Medicinais (PFAM)

1) Nome da entidade formadora

Nome	
Endereço	
Localidade	
País	
Outros	

2) A entidade realizou formação profissional em PFAM

Sim  Não

3) Anúncio de formação do PFAM que realizou nos últimos 5 anos

Período	Para Técnicos		Para Produtores	
	Sim	Não	Sim	Não
2001-2005				
2006-2010				

Se possível, apresentar uma ligação com o nome das ações realizadas

4) Organização dos Cursos

Curso	Sim	Não
Atividades de identificação de plantas aromáticas, botânica e modo de utilização		
Atividades de cultivo de plantas		
Atividades de colheita de PFAM em cultura		
Atividades de colheita de PFAM no estado selvagem		
Atividades de armazenamento de plantas		
Atividades de produção de óleos		
Atividades de extração de compostos de base		
Atividades de distribuição		

5) Recursos Pedagógicos

Recursos	Sim	Não
Equipas da entidade		
Equipas externas		
Equipas de trabalho em grupo		
Outros		

6) Número de formandos por género

Género	Nº Formandos
Homens	
Mulheres	

7) Número de Formandos por ocasião de curso

2001-2005	Nº Formandos
2001-2005	
2006-2010	
2011-2012	

8) Número de Formandos por nível de formação

Nível de Formação	Nº Formandos
Curso de 1º nível	
Curso de 2º nível	
Curso de 3º nível	
Curso de 4º nível	
Curso de 5º nível	
Curso de 6º nível	
Curso de 7º nível	
Curso de 8º nível	
Curso de 9º nível	
Curso de 10º nível	

9) Outros cursos de formação profissional de PFAM realizados sobre a colheita de plantas selvagens

Período	Sim	Não	Para Técnicos	Sim	Não	Para Produtores	Sim	Não
2001-2005								
2006-2010								
2011-2012								

Se possível, apresentar uma ligação com o nome das ações realizadas

10) Na implementação de 2012 estão previstas ações sobre a colheita de plantas selvagens

Período	Sim	Não	Para Técnicos	Sim	Não	Para Produtores	Sim	Não
2012								
2013								

Se possível, apresentar uma ligação com o nome das ações que serão previstas

11) Para além da formação realizada nos pontos anteriores, apresenta os seguintes:

Outros	Sim	Não
Atividades de identificação		
Atividades de cultivo		
Atividades de colheita		
Atividades de armazenamento		
Atividades de produção		
Atividades de distribuição		

12) No caso de ser uma empresa de produção, comercialização e distribuição:

Se a empresa tiver formação especializada no área de PFAM	Sim	Não
Se a empresa tiver formação especializada no área de PFAM		
Se a empresa tiver formação especializada no área de PFAM		

Only six entities have answered

As the information obtained didn't show the real situation, a Web search was made.

The information obtained reports from 2001, except for one course that occurred during 1989 in the South and for two courses that took place in 1994 and 1995, in the Northern Region.

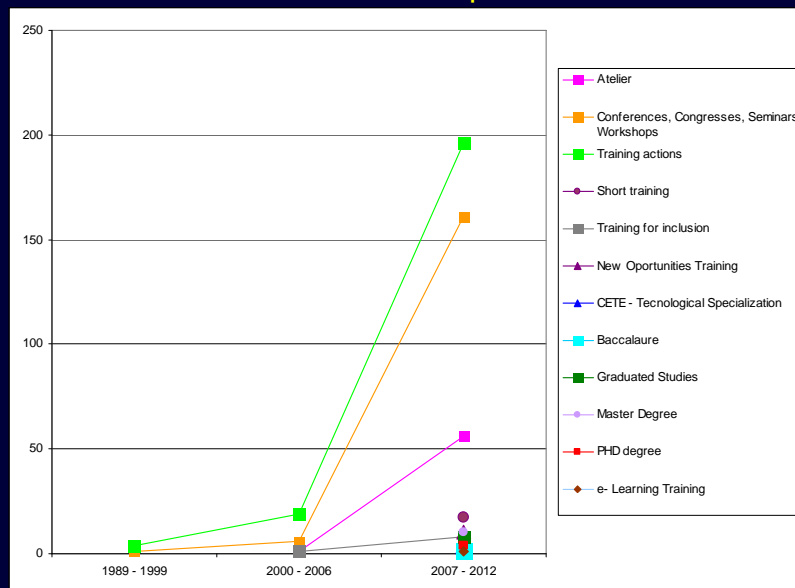
This survey was compiled for 23 years, considering the same periods of I, II and III QCA (European Union Community Support Framework), since 1989 until 2012.

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### Global information for the study period

Type of training action	Nº of Institutions	Nº of Training courses	Nº of Training hours
Professional training	127	429	10 171,5
Training for inclusion	3	8	863
New Oportunities Training	1	10	250
<b>Total</b>	<b>131</b>	<b>447</b>	<b>11 284,5</b>
CETE - Tecnological Specialization	4	4	13 900
Graduation	1	1	27 000
Graduated Studies	4	8	1 150
Master Degree	7	10	153 548
PHD degree	4	4	113 395
e- Learning Training	1	1	108
<b>Total</b>	<b>21</b>	<b>28</b>	<b>309 101</b>
<b>Total</b>	<b>152</b>	<b>475</b>	<b>320 385,5</b>

### Number of Training actions by type in medicinal and aromatic plants



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## 1989 – 1999

- ✓ 3 Training actions:
  - MAP transformation – in 1989, in the South
  - Medicinal and Aromatic Plants - in 1994 in the North
  - Medicinal and Aromatic Plants – in 1995 in the North
- ✓ 3 Workshops:
  - International Symposium on Conservation of Genetic Resources of Aromatic and Medicinal Plants, 1984, Oeiras
  - 1st National Symposium on Medicinal and Aromatic Plants, 1996, Vilamoura
  - 1st International Meeting on Medicinal and Aromatic Plants of the Mediterranean, 1998, in Conimbriga



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Support Action

Maple

Wild

Harvesting

Training

Project

2007-2013

EU

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## 2000 - 2006

- 27 Training activities:
- 1 Atelier
  - 6 workshops,
  - 19 training actions
  - 1 training action for inclusion.

## 2007-2012

**Very large increase in MAP training**

number of training actions

type of training actions



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Support Action

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**2007 - 2012**, 444 training activities took place:

- 55 Ateliers,
- 154 Workshops,
- 173 training actions,
- 17 small courses,
- 7 training actions for inclusion,
- 10 training actions in the New Opportunities course
- 4 CETES.
- 1 University degree, created in 2008,
- 8 pos graduated studies, 1 in 2009 and 7 in 2012,
- 10 Master degrees, 3 in 2007, 1 in 2008, 2009, 2010 and 4 in 2012,
- 4 PHD Programmes, 3 in 2008 and 1 in 2012,
- 1 e-Learning training course in 2011.



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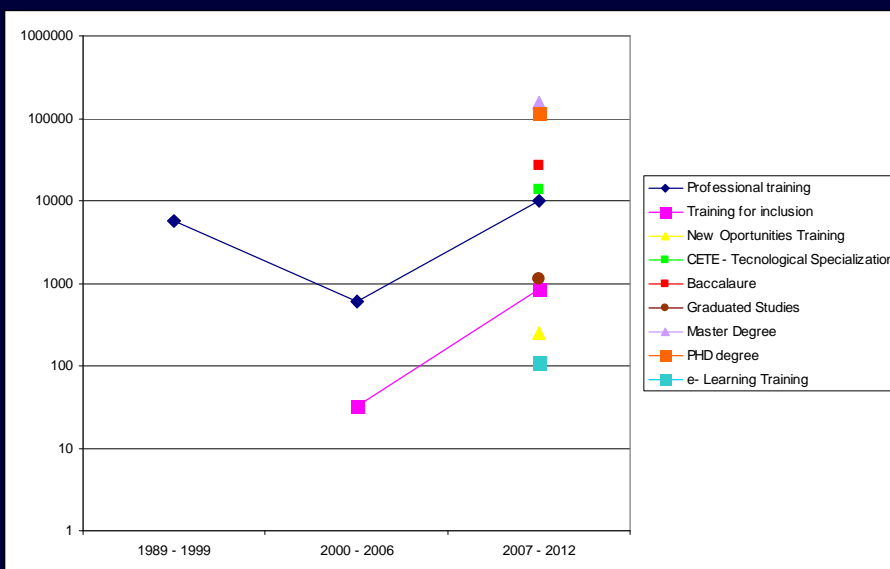


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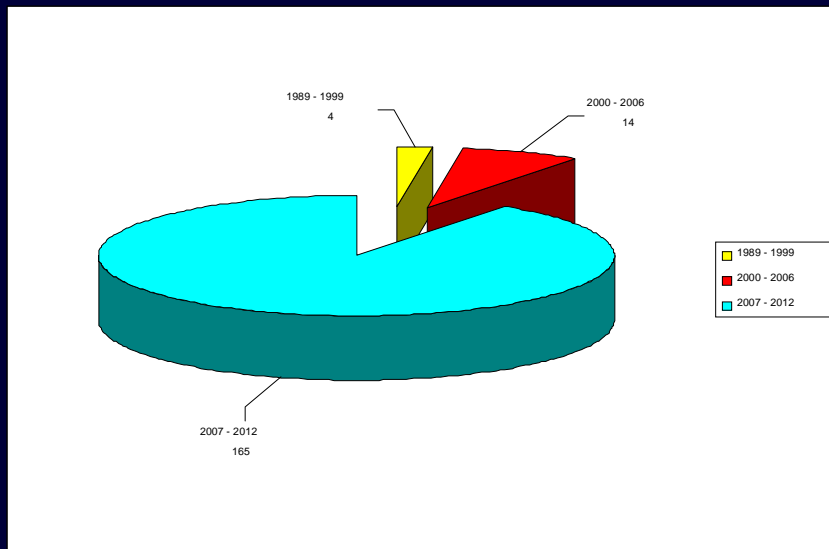


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## Evolution of the number of training hours



## Number of Institutions that organized training actions



This data confirms the anterior, only during this last period MAP as became more interesting.

For the last 5 years, 2007-2012, it is verified not only the larger investment in training actions, but also in formal learning with post graduated studies, masters and doctoral programmes.

In the various regions of Portugal, Madeira an Azores included, MAP training has become more interesting, for Institutions as well as for individual persons.

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The main objective of these training actions is to implement the MAP production, in opposite to recollection in Nature, allowing the genetic resources conservation and the endogenous species protection.

However the production and number of producers have increased in recent years, the recollection of wild MAP plants in Nature still continues, so the training for “Collectors” is so important. Learn how to suitably collect, which parts of the plants , avoiding native populations destruction.

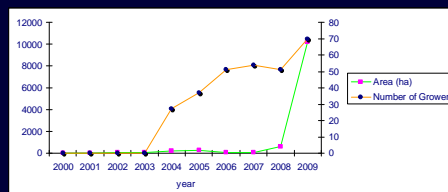
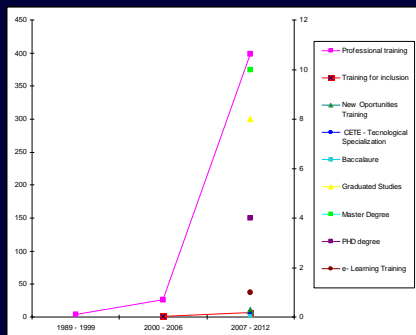


## Wild harvesting training state of art

One course about wild collecting of MAP, that took place in Portugal was from December 2010 until July 2011, for a total period of 800 h- 600 h theoretical and 200 h practical and organized by Associação para o Desenvolvimento do Concelho de Moura, and financed by EU through POPH (Programa Operacional Potencial Humano)



## Comparing number of training actions and number of producers and surface over time



**SWOT Analysis Research, Technology transfer and Training**

<p style="text-align: center;"><b>STRENGTHS</b></p> <ul style="list-style-type: none"> <li>▪ Financial support for training</li> <li>▪ Human resources prepared for training</li> <li>▪ strong scientific knowledge</li> <li>▪ MAP Research on going</li> <li>▪ MAP OP has potential to growth</li> <li>▪ MAP sector produces tradable products with export potential ....</li> <li>▪ Linked to tourism and gastronomy</li> </ul>	<p style="text-align: center;"><b>WEAKNESSES</b></p> <ul style="list-style-type: none"> <li>▪ research on wild MAP harvesting is fragile</li> <li>▪ cultivation and use knowledge is weak</li> <li>▪ traditional knowledge is supported by rural communities -elderly, marginal</li> <li>▪ wild MAP collecting knowledge is supported by older women</li> <li>▪ MAP sector is "juvenil"</li> <li>▪ MAP training financed by EU does not fit the sector needs</li> </ul>
<p style="text-align: center;"><b>OPPORTUNITIES</b></p> <ul style="list-style-type: none"> <li>▪ The crisis can be an opportunity</li> <li>▪ Essential element in rural tourism environmental, ...</li> <li>▪ Gastronomic value</li> <li>▪ Economic ecological value</li> <li>▪ Portuguese Commitments to PGR at the international level</li> </ul>	<p style="text-align: center;"><b>THREATS</b></p> <ul style="list-style-type: none"> <li>▪ Age of collectors</li> <li>▪ Type of collectors / knowledge</li> <li>▪ Existing knowledge especially in elderly populations, fashion, tradition</li> </ul>

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## Projects:

**1997 – 2000.** Hops breeding (*Humulus lupulus* L.) by selection of new cultivars and genetic engineering to reduce the susceptibility to virus and fungus (PRAXIS/2/2.1/BIO/1142/95);

**2001 – 2002.** Characterization and Collection of *Daucus* Germoplasm (58-3655-1F157);

**2001 – 2004.** Ethnobotany, use and management of MAP and their sustainable use as a contribute to the valorization of the rural environment (AGRO 34);

**2005 – 2006.** Organic production of MAP: Programme for introduction and production in the EDM region (AGRIS);



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## Projects:

**2004 – 2007.** National Network for the Conservation and sustainable use of MAP (AGRO 800);

**2008 – 2011.** Conservation and recuperation of PGR ,crop and paysage use species) in Extremadura and Alentejo (RITECA);

**2009 -2010.** Conservation and characterization of oregano (*Origanum vulgare* L.) wild populations in South - Eastern of Europe;

**2011 - 2015** Collecting, Conservation and Documentation of MAP species (PRODER PA 18636)



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Thank you for your attention