
***Final meeting of the ECPGR Activity – EUBRASWILD
Capturing Brassica Wild Relatives Diversity in the South-Eastern Europe***



Ferdinando Branca

Information about EUBRASWILD results

***Dipartimento di Agricoltura, Alimentazione e Ambiente (Di3A)
Università degli Studi di Catania***



Final meeting of the ECPGR Activity – EUBRASWILD

EUBRASWILD

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**EUBRASWILD-
Capturing Brassica Wild
Relatives Diversity in
the South-Eastern
Europe**

Final meeting of the ECPGR Activity – EUBRASWILD


Project informations

Activity	
Duration of activity (in months)	24
Date	1 October 2020 – 1 August 2023
Brassica Working group	<ul style="list-style-type: none">Working group chair: Ferdinando BrancaActivity Coordinator: Smiljana Goreta Ban

ECPGR Brassica Working Group

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 **CHAIR**
Ferdinando Branca
✉ fbranca@unict.it
Confirmed as Chair for Phase X in February 2019
[View CV](#) (176,2 KB)

<https://www.ecpgr.cgiar.org/working-groups/brassica/eubraswild>

Overview

- ✓ **Eastern Europe** is rich in **wild Brassica relatives**, but there is a lack of information on existing species and their distribution.
- ✓ *Brassica* wild species used as leafy vegetables: *Eruca* spp., *Diplotaxis* spp., *Sinapis* spp., *Isatis* spp., *Hirschfeldia* spp.v.



Brassica balearica



Brassica bourgeauii



Brassica cretica



Brassica desnottesii



Brassica drepanensis



Brassica fruticulosa



Brassica hilarionis



Brassica incana



Brassica macrocarpa



Brassica montana



Brassica rupestris



Brassica villosa

Objective:

- to contribute to knowledge on presence, distribution and biodiversity status of wild *Brassica* relatives in the Eastern Europe
- filling the gaps of wild *Brassica* in genbanks and AEGIS
- **7** partners

Partner ID No.	Name and Surname	Institute	Country
1	Ferdinando Branca	University of Catania (UNICT)	Italy
2	Smiljana Goreta Ban	Institute of Agriculture and Tourism (IPTPO)	Croatia
3	Sokrat Jani	Agricultural University of Tirana, Institute of Plant Genetic Resources (IPGR)	Albania
4	Ana Marjanović Jeromela	Institute of Field and Vegetable Crops (IFVO)	Serbia
5	Vladimir Meglič / Barbara Pipan	Agricultural Institute of Slovenia (KIS)	Slovenia
6	Nataša Mirecki	University of Montenegro Biotechnical Faculty (UNIMO)	Montenegro
7	Georgia Ntatsi	Institute of Plant Breeding and Genetic Resources (IPBGR)	Greece

Project activities justification

- **Crop wild relatives (CWRs)** = carriers of desirable agronomic/quality properties →→ breeding programs
- *Brassica* wild relatives are endangered (climatic changes, enlargement of urban areas, tourism, summer fires) due to their specific habitat (coastal cliffs/rocky terrains)
- **AEGIS database** contains 2 273 *Brassica* accessions (UK 909, Netherlands 673, Italy 256) → none from the geographical area that will be covered by **EUBRASWILD**

	2020			2021												2022												2023							
Activity	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	
Meeting		■																		■															
Collecting material/exchange								■	■	■	■									■	■	■	■												
Characterization/regeneration																																			
Duplication for AEGIS																																			

Expected impact

Widening activities of Brassica working group to members of underrepresented genbanks in EURISCO and AEGIS

Capturing of Brassica CWRs diversity in SE Europe

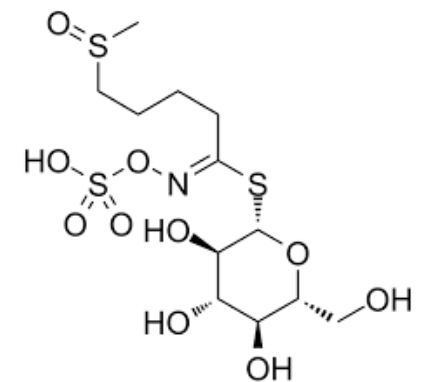
Exploration and identification of new accessions of Brassica CWRs for inclusion into AEGIS

Improvement of genebank management in accordance with principles of AEGIS

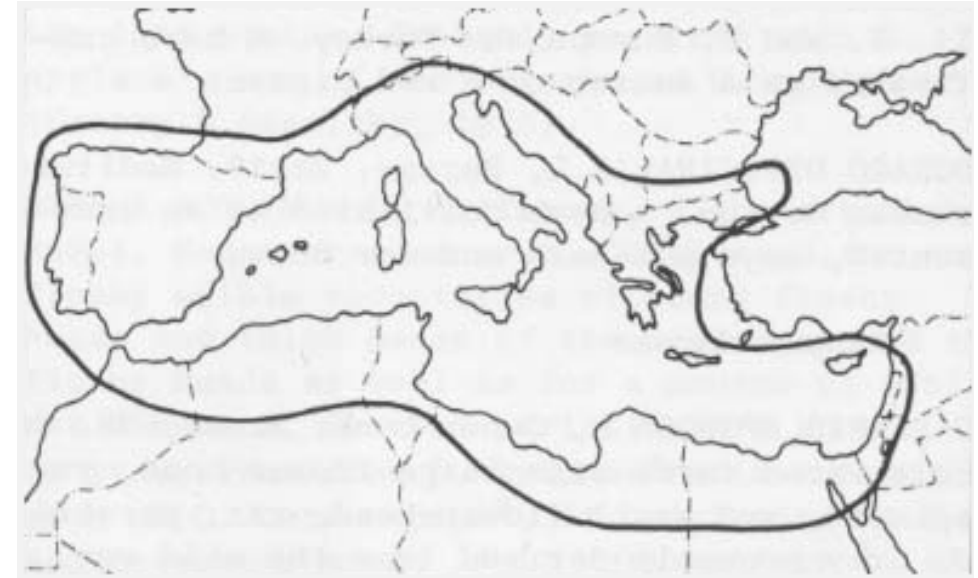
Recommendations for future activities contributing to long-term in situ and ex situ conservation of Brassica CWRs

Brassica vegetables stimulate great interest for:

- **Wide genetic diversity** till available and not yet fully exploited;
- **Nutraceutical traits** of the produce which support the attention of the international medical community;
- New perspectives **for food industry** to exploit the several landraces till now underutilized;
- Possibility to support **environmentally friendly farming**.



- The **domestication of *B. oleracea* complex species (n=9)** occurred in of the north-central and north-east areas of Mediterranean basin.



The richness of *Brassica* wild relatives (n=9):

- perennial plants with woody stem, up to 1.5 m tall, large leaves;
- **high glucosinolate content;**
- the plants are often self-incompatible, with high tendency to mutations and freely inter-crossing among them and with *B. oleracea* crops.

UNICT Expeditions

- Six expeditions by car from Catania, between May 2021 and October 2022:
 - ✓ Palermo and Agrigento province (I),
 - ✓ Erice and Egadi Islands (II),
 - ✓ Butera, and Marianopoli, province of Caltanissetta (III),
 - ✓ Sortino, province of Siracusa (IV),
 - ✓ Francavilla di Sicilia, province of Messina (V),
 - ✓ Butera and Mount Muculufa, province of Caltanissetta (VI).



AIM:

increase the **availability of seeds** for the bio-morphological, biochemical and genetic characterization of **CWRs populations** which were not available in genebanks.

Methodology

- **Harvesting of siliquas** from individual plants that were kept separate in the case of *B. rupestris* of Corleone and *B. villosa* of Caltabellotta;
- **Bulked from several plants**, for all other populations for which we collected seeds, or removal of vegetative cuttings;
- **Cutting method** (oblique cutting carried out by professional pruning shears);
- Collection at the University of Catania, Di3A (Lab of Biotechnology of Vegetable Crop).



I° Expedition

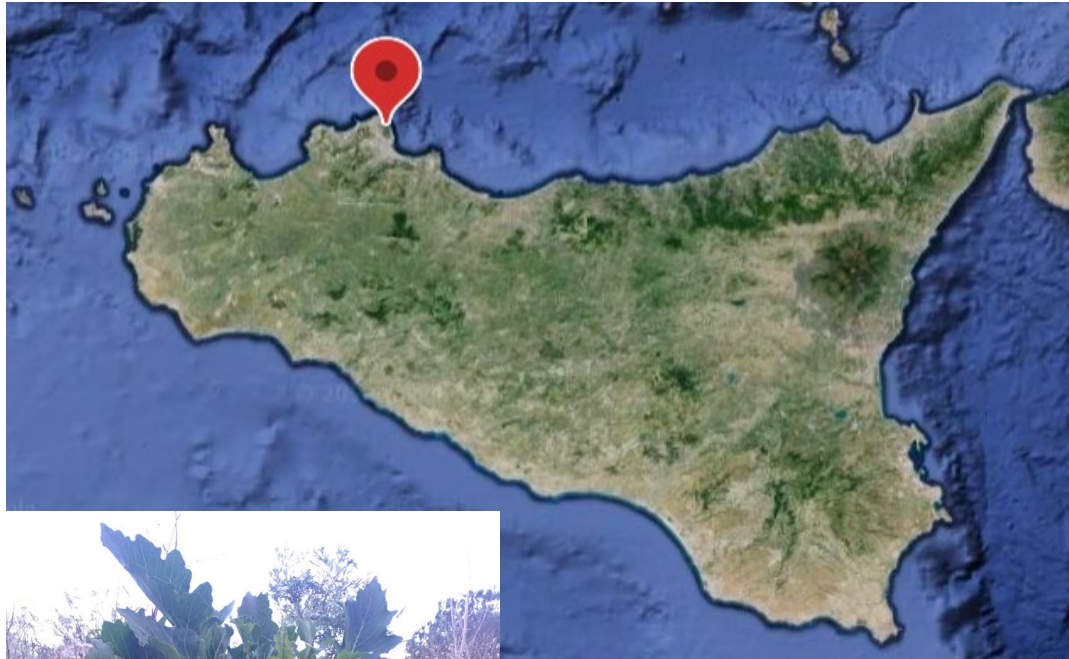
- May 2021
- Palermo and Agrigento province;
- **4** different accessions: **2** accessions of *B. rupestris* (Corleone and Monte Pellegrino).



Corleone
37.797718, 13.307098

B. rupestris

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Monte Pellegrino

38.16830556, 13.35211111

B. rupestris

- 1 accession of *B. rupestris* subsp. *tardarae* (Ilardi & al.) Raimondo (Sambuca di Sicilia).



Sambuca di Sicilia

37.60308413, 13.0465583

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- 1 accession of *B. villosa* (Caltabellotta).



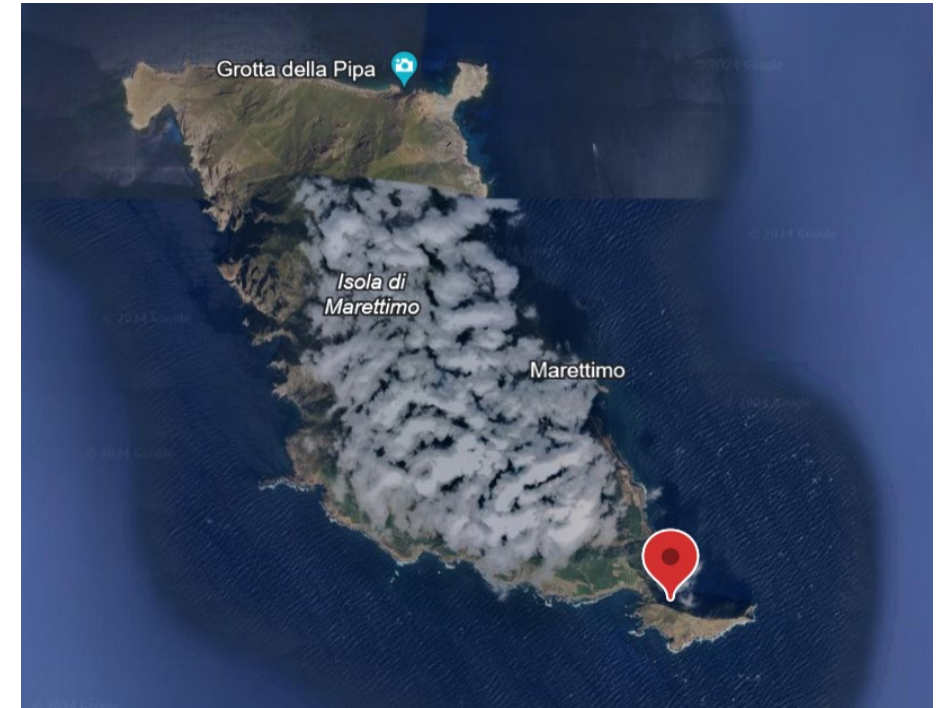
B. villosa



Caltabellotta
37.57669444, 13.16616667

II° Expedition

- July 2022;
- Trapani province;
- **2** accessions of *B. macrocarpa* (Isola di Favignana and Marettimo).



Marettimo

37.94880556, 12.08336111

Isola di Favignana

ST. 1: 37.92108333, 12.31330556

ST. 2: 37.93400000, 12.31694444



Brassica macrocarpa

- 1 accession of *B. drepanensis* was collected on mount Erice.

III° Expedition

- March 2022;
- Mount Muculufa, near Butera and Marianopoli, Caltanissetta province;
- **2** populations of *B. villosa* subsp. *tineoi* (Lojac.) Raimondo & Mazzola.



Mount Muculufa
37.21597222, 14.00886111

IV° Expedition

- June 2022;
- Sortino, Siracusa province;
- 1 accession of *B. incana*.



B. incana

Sortino

37.133350, 15.031676

V° Expedition

- July 2022;
- Francavilla di Sicilia, Messina province;
- 1 accession of *B. incana*.



B. incana



Francavilla di Sicilia
37.90494444, 15.12491667

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VI° Expedition

- October 2022;
- Monte Muculufa, Caltanissetta province;
- Population of *B. villosa*.

Monte Muculufa

37.21577778, 14.01016667



B. villosa



EUBRASWILD events

- ✓ **First meeting:** virtually, 30 November 2020
- ✓ **Second meeting:** virtually, 3 March 2021



First meeting of the ECPGR Activity – EUBRASWILD
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Second meeting of the ECPGR Activity – EUBRASWILD
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Thank you for your attention!



*Prof. Ferdinando
Branca*



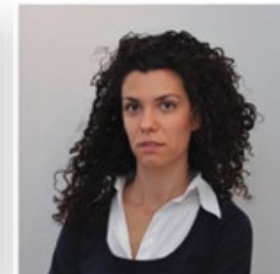
*Dr. Simone
Treccarichi*



Giulio Flavio Rizzo



Donata Arena



Giulia Schippa



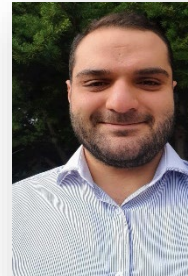
*Dr. Maria Concetta
Di Bella*



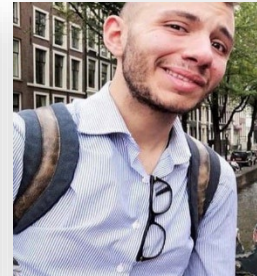
*Dr. Hajer Ben
Ammar*



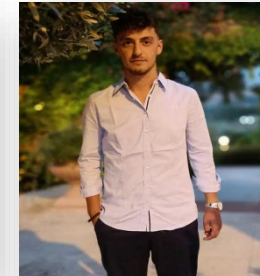
Marwen Amari



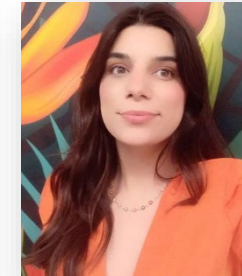
Nicolas Achkar



Riccardo Calì



Luca Ciccarello



Gresheen Garcia