



Deliverable title	D3.2 Catalogued and stored seeds from at least 6 Mediterranean and 3 Atlantic shoreline sea fennel populations
Deliverable Lead:	INRGREF
Related Work Package:	WP3
Related Task:	Task 3.1 Sampling and morphological characterization of spontaneously growing sea fennel populations
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Dissemination level	CO
Due Submission Date:	MONTH 8 (30.01.2023)
Actual submission:	30.01.2023
Start date of project	30.05.2022
Duration	36 MONTHS
Summary of Deliverable D3.2 – Catalogued and Stored Sea Fennel Seeds	Between autumn 2022 and 2023, thousands of mature seeds were harvested: about 3,000 per site in Italy, 3,500 in France, 4,000 in Croatia, and 2,500 each in Tunisia and Türkiye. The seeds were carefully cleaned, dried, and conditioned at controlled temperatures before being split into two paths: one portion was reserved for germination tests and seedling production, while the rest was archived for long-term preservation. Each country deposited its collections in national or regional seed banks: the Anfi Adriatic Seed Bank (Italy), the Institute for Adriatic Crops (Croatia), the Geoarchitecture Lab Seed Bank (France), the INRGREF Seed Bank (Tunisia), and the ETAE National Seed Gene Bank (Türkiye). Unique access codes were assigned to every seed lot, ensuring traceability by linking samples to their precise geographic origins. Seeds are now safely stored under different conditions +4°C for medium-term and -18 to -20°C for long-term conservation according to international protocols. By combining rigorous cataloguing with modern seed banking practices, SEAFENNEL4MED has secured one of the project's most enduring legacies: a resilient genetic foundation for sea fennel's future as a sustainable Mediterranean crop.

Versioning and Contribution History

Version	Date	Modified by	Modification reason
v1.0	20/01/2023	Abdelhamid Khaldi	First version
v2.0	30/01/2023	Abdelhamid Khaldi	Comments after peer reviewing process

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1. Cataloguing of seeds

The objectives of this deliverable were the sampling, cataloguing, and storing of seeds belonging to Mediterranean Sea fennel populations. During Autumn (October-November) 2022 and 2023 the sampling campaigns were carried out as follows:

ITALY: ~3000 seeds/fruits were sampled at each sampling site.

FRANCE: ~3500 seeds/fruits were sampled at each sampling site

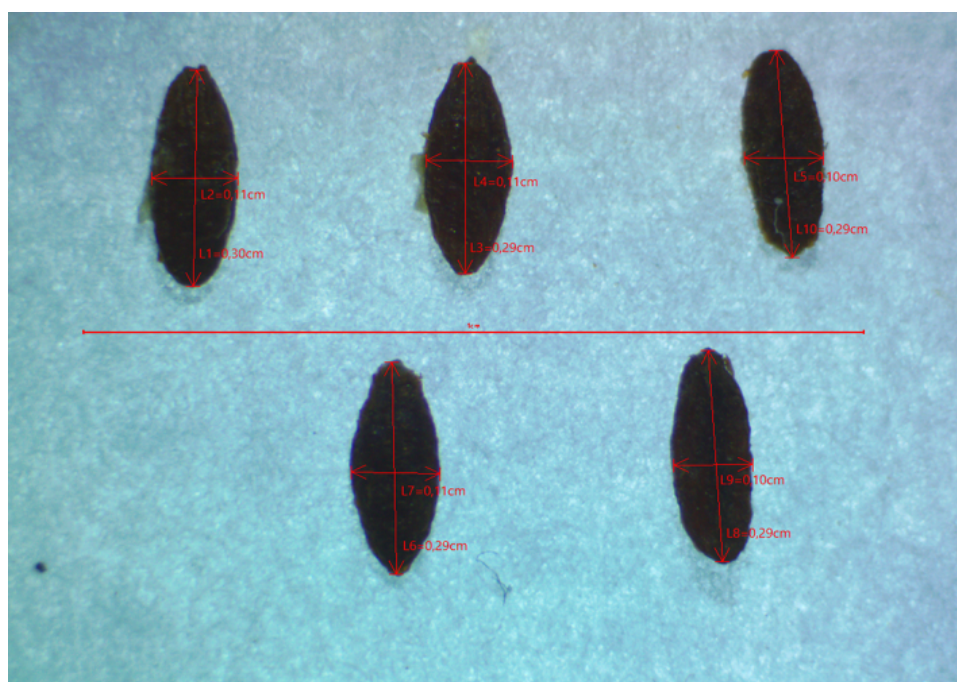
CROATIA: ~4000 seeds/fruits /fruits were sampled for each sampling site

TUNISIA: ~2500 seeds/fruits were sampled at each site.

TURKIYE: ~2.500 seeds/fruits were sampled at each sampling site.



Seed measurements were made according to the procedure detailed in Annex I of D3.1.



1.1 Orto Botanico Selva di Gallignano seedbank (Italy)

Mature seeds sampled from the Italian wild populations were stored by the Anfi Adriatic Seed Bank (AASB) of the Orto Botanico Selva di Gallignano (UNIVPM, Ancona, Italy). Unique access code has been attributed to the different seed collections, with each code corresponding to the date and the locality of collection:

- CON: the seeds were sampled at Due Sorelle Bay (Sirolo, AN) – Italy. Date: 5 October 2022. AASB SeaFennel 22A01;
- MAR: the seeds were sampled in Porto Potenza Picena (MC) – Italy. Date: 19 October 2022. AASB SeaFennel 22A02;
- TOS: the seeds were sampled at Calafuria (LI) location – Italy. Date: 28 October 2022. AASB SeaFennel 22A03;
- SIC: the seeds were sampled at the Terrasini (PA) location, Riserva di Capo Rama – Italy. Date: 29 October 2022. AASB SeaFennel 22A04;
- SAR: the seeds were sampled at Valle dell'Erica (OT) location, "La licciola" locality – Italy. Date: 3 November 2022. AASB SeaFennel 22A05;
- PUG: the seeds were sampled at Calalunga (Peschici, FG) location – Italy. Date: 16 November 2022. AASB SeaFennel 22A06;
- CAL: the seeds were sampled at Vasche di Cassiodoro location, Copanello (CZ) – Italy. Date: 20 November 2022. AASB SeaFennel 22A07.
- COR: the seeds were sampled in Bussaglia (Corsica) – France. Date: 11 October 2023. AASB SeaFennel 22A08
- LIG: the seeds were sampled in Bergeggi (SV) – Italy. Date: 28 October 2023. AASB SeaFennel 22A09

Seeds were cleaned, counted, weighed, and stored in dry Room where they were conditioned at 16°C and 18% relative humidity until they lost excess water and their weight reached stability.



An aliquot (1000) of the seeds was used for the germination tests and the production of plants; the remaining seeds were kept for further studies. A sample of each accession of seeds, after the appropriate preparatory stages, was archived for long-term storage in a freezer at -18 ° C, in the Anfi Adriatic Seed Bank (AASB) of Orto Botanico Selva di Gallignano (UNIVPM). The freezer where the seeds are stored for their long-term conservation is shown below.

1.2 Croatian seedbank

Mature seeds were cleaned, weighed, and temporary stored at controlled temperature (16°C) until they were cataloged and stored at seed bank in the Institute for Adriatic Crops under the name of the location where they were collected. Part of the seeds are stored at 4°C and part of seeds is stored in freezer for long term conservation.

List of the ecotypes collected on Croatian coast from northern to southern locations (locations are :

- Krk - the seeds were sampled in Njivice, island Krk; Date: 6 November 2022
- Senj - the seeds were sampled at Kozica camp near town Senj Date: 6 November 2022
- Pag - the seeds were sampled Girenica bay, near Kolan on Pag island; Date: 6 November 2022

- Šibenik - the seeds were sampled at Jadrija beach, near town Šibenik; Date: 3 November 2022
- Split - the seeds were sampled at Žnjan beach, town Split; Date: 5 November 2022
- Drašnice - the seeds were sampled on Rat beach, Drašnice (CRO); Date: 13 November 2022
- Korčula - the seeds were sampled in Luka bay, town Korčula on island Korčula (CRO); Date: 14 November 2022
- Pelješac - the seeds were sampled in Prapatno bay, Pelješac peninsula, Date: 14 November 2022
- Neretva - the seeds were sampled on river Neretva mouth (delta); Date: 14 November 2022
- Cavtat - the seeds were sampled on Cavtat city peninsula; Date: 14 November 2022



1.3 French seedbank

About 3,000 mature seeds of sea fennel from 3 locations along Brittany shoreline were sampled, cleaned, weighed, and temporary stored at controlled temperature (15°C) until they were catalogued and stored at -20°C in the seed bank of Geoarchitecture lab (UBO, Brest, France). Unique access code was assigned to the different seed populations, with each code corresponding to the date and the locality of sampling:

- LAN_121022: the seeds were sampled along Porsévégné beach at Landunvez (France) on October 20th, 2022;
- PLO_131022: the seeds were sampled at Plouha (France) on October 21st, 2022;
- PRI_141022: the seeds were sampled at Primelin (France) on October 24th, 2022.



Sea fennel sampling from the Brittany shoreline to seed collecting for the French seed bank.

1.4 Tunisian seedbank

Mature seeds were stored in Seed Bank of INRGREF (INRGREF, Tunisia). For each population, a code including the date and the site of collection were mentioned as follow:

- MON-26 Oct 2022: seeds collected at Monastir location.
- BIZ-28 Oct 2022: seeds collected at Bizerte location.
- HAO-29 Oct 2022: seeds collected at Haouaria location.
- TAB-9 Nov 2022: seeds collected at Tabarka location.
- CAP-9 Nov 2022: seeds collected at Cap Negro location.

Before storage at -20°C, all seed collections were cleaned and placed in the Seed Bank drying room which is at 15°C and 15% relative humidity.



1.5 Turkish seedbank

2500 mature seeds from the Turkish wild populations with an average total weight of 500 g from each locality were cleaned, weighed and stored in the Aegean Agricultural Research Institute National Seed Gene Bank (ETAET UTGB). Before being preserved in the ETAET National Seed Gene Bank, viability and moisture tests were carried out on the seed samples, and they were stored in two sets, medium and long-term storage with the code under ETAET24-55016. Long-term base collection at -18/-20 °C and medium-term active collection at 0 °C.

- Dİ - Seeds: Seeds sampled from Dikili location at 13.09.2022
- UR - Seeds: Seeds sampled from Urla location at 07.12.2022
- Çe - Seeds: Seeds sampled from Çeşme location at 14.09.2022
- SE - Seeds: Seeds sampled from Seferihisar location at 07.12.2022





(In order) ETAE National Seed Gene Bank building in Izmir, Cold Storage Unit Entrance, Shelves where seeds are stored, Placement of seeds for storage by our Scholar.