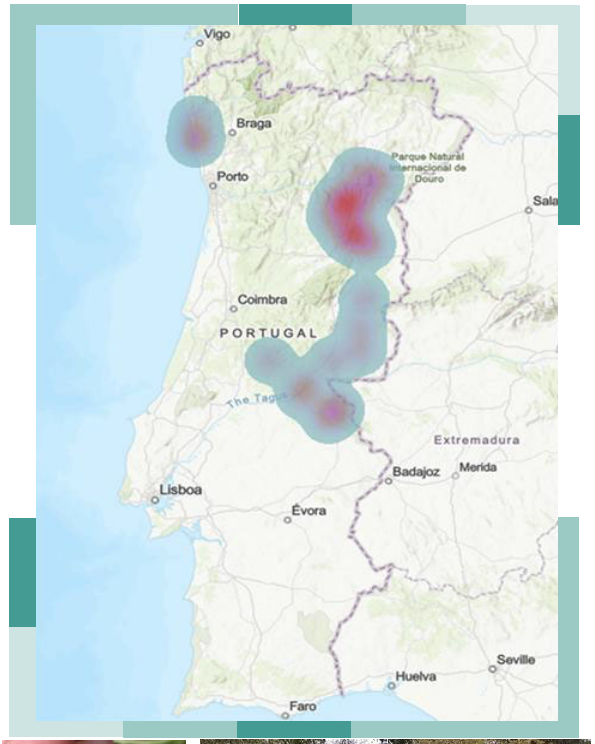
Sites for prospecting and collecting germplasm of rocket plants of the genus *Diplotaxis* (*D. tenuifolia, D. catholica, D. siifolia*) and *Eruca spp.* in Portugal.



Collecting plants at Portalegre.

The seeds were cleaned and characterized at the Portuguese Plant Germplasm Bank (BPGV / INIAV) in Braga for future use in breeding programs.

REGIONS OF INTERVENTION

Lisboa, Braga, Alentejo, Algarve

LEADER INSTITUTION

National Institute for Agrarian and Veterinary Research

https://projects.iniav.pt/REMIRucula

OTHER PARTICIPANTS

UAlg UNIVERSIDADE DO ALGARVE

iTqb UNIVERSIDADE NOVA DE LISBOA

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REMI RUCULA

Hyaloperonospora sp.

RESISTANCE CHARACTERIZATION TO DOWNY MILDEW IN WILD ROCKET CROP

Ref.: PTDC/ASP-PLA/28963/2017

Project duration:

2018/12/01 to 2022/11/30

OBJECTIVES

The REMIRucula project focus on the problem of the high susceptibility of wild rocket varieties to downy mildew disease.

The main objectives of the project are increasing knowledge about downy mildew disease, achieving a more sustainable wild rocket production and improving the quality of final product.

A rocket collection with more than 150 accessions was constituted and:

- The resistance to the downy mildew of the collection was evaluated,
- Downy mildew infection will be histologically characterized,
- Specific molecular markers of rocket and *Hyaloperonospora* pathogen will be identified,
- The lipidomic and metabolomic profiles of wild rocket plants will be obtained.

IMPORTANCE OF ROCKET IN HUMAN HEALTH

There are two main species of rocket plants, the wild rocket (*Diplotaxis tenuifolia*) and the cultivated rocket (*Eruca sativa*). They are leafy crops easy to grow in urban or small vegetable gardens. The continuous leaf growth over time allows a direct and easy daily consumption.

The wild rocket is a native plant from Mediterranean region, and a successful case of recent domestication. It is widely used in fresh consumption as a component of packaged salads in the Mediterranean diet.

The wild rocket is much appreciated for its organoleptic characteristics. The typical aroma and bitter and spicy taste result from the presence of a high content of glucosinolates that are beneficial for human health, constituting a good source of anticarcinogenic compound.

ROCKET DOWNY MILDEW: WHAT IS IT?

Downy mildew in wild rocket is an epidemic disease caused by the oomycete *Hyaloperonospora sp.*

It is a serious problem for growers and can lead to high wild rocket (*D. tenuifolia*) yield losses in the field and greenhouse condition. Cultivated rocket (*E. sativa*) has been found to be more resistant to the disease.

Downy mildew disease develops in cold and humid conditions, and is disseminated by airborne dispersion of oomycete spores.

The use of downy mildew resistant varieties is very important for producers, the environment and consumers.

Leaves of wild rocket.

Open field production of wild rocket.

Wild rocket plantlets (21 days) infected with downy mildew.