

DIPARTIMENTO DI SCIENZE E TECNOLOGIE
BIOLOGICHE CHIMICHE E FARMACEUTICHE (STEBICEF)

First STeBICeF Young Researcher Workshop

I giovani ricercatori del Dipartimento raccontano le loro
ricerche alla comunità.

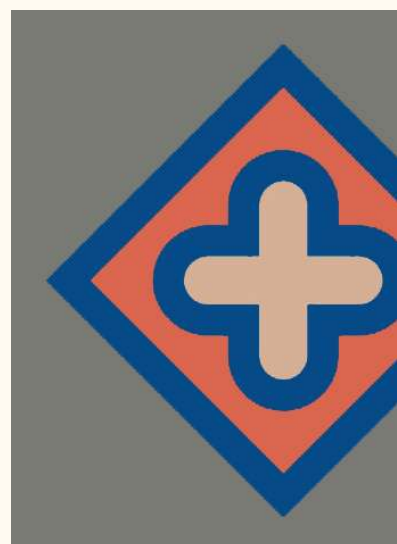
Book of abstract

Palermo

12 Gennaio 2023, ore 9:00

Viale delle Scienze, Ed.16

Aula Mutolo



**Università
degli Studi
di Palermo**

The study of functional traits in populations of *Brassica rapa* L. and *Brassica oleracea* L. under drought stress conditions

Giuseppa Roberta Tarantino^{1*}, Anna Geraci¹, Elisabetta Oddo¹
¹STEBICEF Department, University of Palermo, Via Archirafi 38, I-90123 Palermo (Italy)

* Presenting author email: giusepparoberta.tarantino@unipa.it

The identification of variability and adaptive traits is a valuable tool for tackling the climate changes taking place in the Mediterranean area and thus contributing to an agriculture based on the enhancement of biodiversity and of Crop Wild Relatives [1].

The BrasExplor project “Wide exploration of genetic diversity in Brassica species for sustainable crop production”, funded by the PRIMA programme, aims to explore and study the genetic diversity of two species: *Brassica rapa* L. (turnips) and *Brassica oleracea* L. (cabbages), including both cultivated varieties, local populations and wild relatives [2]. A large number of populations of these species have been collected in different Countries along a wide climatic gradient in the Mediterranean area. A selection of these genotypes was cultivated in the field and in the greenhouse at the Botanical Garden of Palermo. Germination, survival, leaf and root morphometric characters and phenology up to flowering and fruiting were studied. To study the response of the genotypes in dry conditions, potted plants were subject to drought stress and recovery and a set of functional traits (leaf stomatal conductance, chlorophyll content and photosynthetic efficiency) were measured. Both *B. rapa* and *B. oleracea* genotypes showed a reduction in stomatal conductance and photosynthetic efficiency after 5-8 days of drought stress. In both species there were more sensitive genotypes and less sensitive ones. A high variability in recovery was also evident, depending on the genotype and the parameter measured. The measurement of stomatal conductance and chlorophyll fluorescence were confirmed as useful tools for evaluating the diversity of responses of different populations of *Brassica* to water stress.

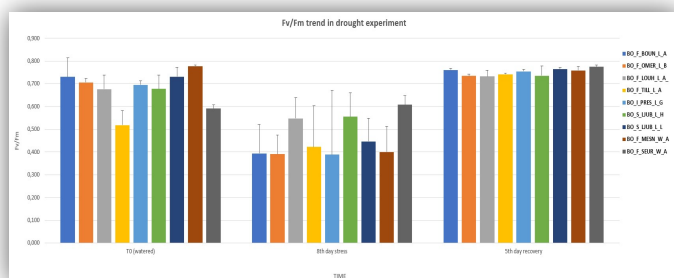


Figure. Photosynthetic efficiency assessed by chlorophyll fluorescence in populations of *B. oleracea*.

References

- [1] A. Geraci et al., Physio-morphological traits and drought stress responses in three wild Mediterranean taxa of Brassicaceae., *Acta Physiologiae Plantarum*, 2019, 41, 1-11. doi.org/10.1007/s11738-019-2899-5
- [2] BrasExplor <https://www6.inrae.fr/braseplor/>