

G. Gugliuzza, G. Domina & A. Giovino

## Seed germination of *Thymus richardii* subsp. *nitidus* (*Lamiaceae*)

### Abstract

Gugliuzza, G., Domina, G. & Giovino, A.: Seed germination of *Thymus richardii* subsp. *nitidus* (*Lamiaceae*) [In Magrini, S. & Salmeri, C. (eds), Mediterranean plant germination reports – 3]. Fl. Medit. 31: 291-293. 2021. <http://dx.doi.org/10.7320/FlMedit31.291>

The germination ability of the punctual endemic *Thymus richardii* subsp. *nitidus* (*Lamiaceae*) from the Island of Marettimo in W Sicily was studied. Mature seeds were collected in the field. Different experimental conditions were tested and the best methods with optimal germination results were provided. This is the first germination record for this taxon.

*Key words*: Marettimo, Egadi, Island flora, conservation.

### Introduction

*Thymus richardii* Pers. (*Lamiaceae*) is a suffruticous taxon that includes five subspecies: *T. richardii* subsp. *richardii*, *T. richardii* subsp. *ebusitanus* (Font Quer) Jalas, *T. richardii* subsp. *vigoii* Riera Gümenes & Rosselló, *T. richardii* subsp. *nitidus* (Guss.) Jalas and *T. richardii* subsp. *aureopunctatus* (Beck) L.Sáez, Bogunić & Bogdanović. The first occurs in Mallorca (Balearic Islands, E Spain), the second in Ibiza (Balearic Islands, E Spain), the third in Sierra de la Safor (E Spain) the fourth in Marettimo (Egadi islands, W Sicily) and the latter in near Konjic (N Herzegovina) (Morales 2010; Sáez & al. 2021). *T. richardii* subsp. *nitidus* occurs in five localities on the island of Marettimo (Francini & Messeri 1956; Gianguzzi & al. 2006; Bartolucci & Domina 2015) and its population can be estimated at about two hundred mature individuals. This taxon can be considered among the rarest thyme in Italy, though it is listed as Near Threatened (NT) in Orsenigo & al. (2018) because no real threats affect its habitat and the population is almost stable. The best protocol for seed germination of this taxon was assessed and discussed.

### 59. *Thymus richardii* subsp. *nitidus* (Guss.) Jalas (*Lamiaceae*)

#### Accession data

**Si:** Isola di Marettimo (TP), Portella Ansini (WGS84: 37.962565°N, 12.062577°E), 470 m a.s.l., 14 Jun 2019, A. Giovino & G. Gugliuzza (SAF100040).

### Germination data

*Pre-treatment:* seed priming with a 24 h period of imbibition in 200 ppm GA<sub>3</sub> water solution (200 mg/l).

*Germination medium:* 3 sheets of sterilized filter paper (Whatman 40), imbibed with 10 ml of distilled water under sterile conditions in Petri dishes.

*Sample size:* 60 seeds per treatment (20 × 3 replicates).

Germination	Thermoperiod	Photoperiod [light/dark]	T <sub>1</sub> [d]	T <sub>50</sub> [d]	T <sub>max</sub> [d]	MTG [d]
82.5%	constant 20°C	0/24h	5.5	8.2	15.0	9.4

### Observations

The average seed size is around 0.6-0.7 mm, dark brown in colour and oval-elliptical in shape. Thousand-seed weight: 104.7 g. The percentage of fertile seeds calculated with the flotation method is 66.8% (Fig. 1).

This is the first germination report for this taxon. Mature seeds were collected in June from wild plants and were selected by the flotation method before germination tests.

Other pre-treatments tested were seed priming with a 24 h period of imbibition in: 1) distilled water; 2) warm distilled water (35°C); 3) 0.02% boric acid aqueous solution (0.2 g/l); 4) 100 ppm GA<sub>3</sub> water solution (100 mg/l); 5) 300 ppm GA<sub>3</sub> water solution (300 mg/l).

Imbibition for 24 hours in a solution with water and gibberellic acid (200 mg/l) was the only treatment giving a percentage of germination higher than 80%. Little lower results (77.5% of germination) were achieved through the pre-treatment with 300 ppm GA<sub>3</sub>, while simple imbibition for 24 hours in distilled water gave the worst result with just 22.5% of germination.

### Acknowledgments

The authors are grateful to Gaetano Giardina for his fruitful collaboration.

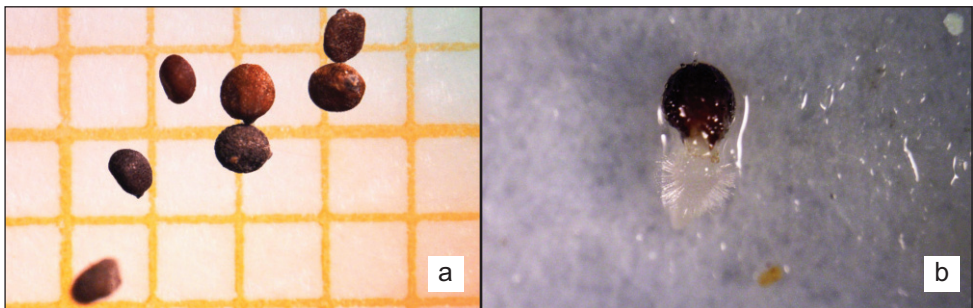


Fig. 1. *Thymus richardii* subsp. *nitidus*: a, seeds; b, germinated seed.

**References**

- Bartolucci, F. & Domina, G. 2015: The genus *Thymus* (*Lamiaceae*) in Sicily. – *Pl. Biosyst.* **149**: 710-719. <http://dx.doi.org/10.1080/11263504.2015.1057259>
- Francini, E. & Messeri, A. 1956: L'isola di Marettimo nell'arcipelago delle Egadi e la sua vegetazione. – *Webbia* **11**: 607-846. <http://dx.doi.org/10.1080/00837792.1956.10669652>
- Gianguzzi, L., Scuderi, L. & Pasta, S. 2006: La flora vascolare dell'Isola di Marettimo (Arcipelago delle Egadi, Sicilia occidentale): analisi fitogeografica ed aggiornamento. – *Webbia* **61**: 359-402. <https://doi.org/10.1080/00837792.2006.10670810>
- Morales, R. 2010: *Thymus* L. – Pp. 349-409 in: Castroviejo, S., Morales, R., Quintanar, A., Cabezas, F., Pujadas, A. J. & Cirujano, S. (eds), *Flora Iberica*, **2**. – Madrid.
- Orsenigo, S., Montagnani, C., Fenu, G., Gargano, D., Peruzzi, L., Abeli, T., Alessandrini, A., Bacchetta, G., Bartolucci, F., Bovio, M., Brullo, C., Brullo, S., Carta, A., Castello, M., Cogoni, D., Conti, F., Domina, G., Foggi, B., Gennai, M., Gigante, D., Iberite, M., Lasen, C., Magrini, S., Perrino, E. V., Prosser, F., Santangelo, A., Selvaggi, A., Stinca, A., Vagge, I., Villani, M., Wagensommer, R. P., Wilhelm, T., Tartaglino, N., Duprè, E., Blasi, C. & Rossi, G. 2018: Red Listing plants under full national responsibility: Extinction risk and threats in the vascular flora endemic to Italy. – *Biol. Conserv.* **224**: 213-222. <https://doi.org/10.1016/j.biocon.2018.05.030>.
- Sáez, L., Bogunić, F., Cambria, S., Riera, J., Bogdanović, S. 2021: On the identity of *Thymus humifusus* var. *aureopunctatus* (*Lamiaceae*) and taxonomic notes on the *Th. richardii* complex. – *PhytoKeys* **186**: 139-158. <https://10.3897/phytokeys.186.75412>

Addresses of the authors:

Giovanni Gugliuzza<sup>1\*</sup>, Gianniantonio Domina<sup>2</sup> & Antonio Giovino<sup>1</sup>,

<sup>1</sup>CREA Research Centre for Plant Protection and Certification, Palermo, Italy.  
Emails: [giovanni.gugliuzza@crea.gov.it](mailto:giovanni.gugliuzza@crea.gov.it); [antonio.giovino@crea.gov.it](mailto:antonio.giovino@crea.gov.it)

<sup>2</sup>Department of Agricultural, Food and Forest Sciences, University of Palermo, viale delle Scienze, bldg. 4, I-90128 – Palermo, Italy. Email: [gianniantonio.domina@unipa.it](mailto:gianniantonio.domina@unipa.it)

\*Corresponding author