

Abstract

To increase the knowledge about the germination physiology of *Tuberaria major* (Willk.) P.Silva & Rozeira, an endemic Portuguese species that only flourishes in the Algarve (Portugal), we analyzed the influence of heat treatments and mechanic scarification, before seeding, in the germination process. The effect of two types of lighting (incandescent lamps and natural light) on the germination process was also assessed. The seeds were submitted to temperatures between 40°C and 140°C (dry heat), with different exposure times, (2 and 5 days at 40°C and 60°C and 1, 5 and 10 minutes at temperatures between 80°C and 140°C), to simulate direct sun exposure during Summer or a fire event. Mechanic scarification was carried out using sandpaper or regular sand. Germination occurred at 15°C in the dark, when light was not a treatment, and was assisted for 60 days. Germination was dramatically increased by the heat treatments at 100°C and 120°C and by the mechanic scarification with sandpaper. Sixty days after seeding, percentage of germinated seeds was close to zero in the control and ranged from 60% to 90%, in the treatments at 100°C and 120°C, depending on the exposure time. In seeds exposed to 120°C the germination was conditioned by the maximum exposure time of 1 minute. Treatments at 120°C with exposure times superior to 1 minute or with temperatures superior to 120°C led to no seed germination. The light factor doesn't seem to have a dramatic effect in *Tuberaria major* germination. However germination in dark seems to be slightly superior, especially in treated seeds and under natural light.

Scarification with sandpaper led to germinations higher than 90%. Thus it seems like these seeds are seeds with a primary physical dormancy (hard coat) that may be overcome by mechanic abrasion or fire occurrence.

KEY WORDS: *Cistaceae*; protected species; fire; dormancy; heat-shock; scarification