

PST26 - Terrestrial forms of aquatic plants increase seed germination to face adverse periods

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In Mediterranean areas, seed banks play a fundamental role to ensure the re-establishment of aquatic plant assemblages in wetlands after a dry period. In these areas the unpredictability of rainfall provides a wide variation in the hydroperiod of the water bodies. Aquatic plants in temporary ponds may respond to this interannual unpredictability with changes in their morphological characteristics. They can develop terrestrial forms that are able to produce flowers and fruits in years of scarce rainfall, when many ponds are not flooded. We collected seeds from aquatic and terrestrial plants of *Callitriche brutia* and *Ranunculus peltatus* subsp. *saniculifolius*, two typical aquatic species of Mediterranean temporary ponds and we inundated them under controlled conditions to assess their germination. For *Callitriche brutia* we counted the number of germinated seeds during one inundation period. In this species, terrestrial seeds had higher germination (79%) than aquatic seeds (39%). For *Ranunculus peltatus* subsp. *saniculifolius*, we carried out five subsequent inundation periods, alternated with dry periods, in which we combined different storage dry conditions (room and cold stratification). During the first inundation, after a summer dry phase, germination was higher for terrestrial than for aquatic seeds. However, a similar germination was recorded for terrestrial and aquatic seeds during the following inundation after a dry phase with cold stratification. At the end of the experiment, the total proportion of germinated seeds was higher (76%) in terrestrial than in aquatic seeds (45%). Our results highlight the ability of aquatic plants to face adverse conditions by increasing seed germination rate. During dry periods, terrestrial forms of aquatic plants produce seeds with a high and fast germination potential, with which they ensure the colonization of the ponds in the next flooded event.