

PST18 - Plasticity of functional traits study of six Moroccan amphibious plants along a latitudinal gradient in temporary ponds in Morocco

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Many temporary pond species have a broad distribution and are found in diverse hydrological and soil conditions. The aim of this work was to test (1) if functional traits of species differ along a latitudinal and climatic gradient and (2) if differences could result from plastic response or from local adaptations.

Three vegetative (height, number of leaves, leaf area) and one reproductive (seed weight) life-history traits of six amphibious plants species (*Baldellia*, *Damasonium*, *Elatine* and *Isoetes*), were studied in 20 ponds distributed throughout a north-south gradient (35°- 31°N). In each pond, traits were measured on individuals collected in the field (11 individuals/species/ponds). In addition, the same traits were measured on individuals from the same populations but cultivated from seeds in the homogeneous conditions (hydrological, light, temperature and substrate).

Measurements of field samples showed a significant correlation between latitude and plant traits. From North to South, the individuals were shorter, with smaller and fewer leaves and lighter seeds. These differences are related to drier climate resulting in shorter flooding periods which constitute a stress for southern plants, hence limiting their development. Nevertheless, this variation in plant traits was no longer expressed when plants were cultivated under homogeneous conditions.

These results suggest that the differences found in traits of the six field plants, correspond to a plastic response of the plants rather than to a genetic adaptation to local environmental conditions. This plasticity of the pond species contribute to their resilience to environmental fluctuation and climate change and would facilitate eventual population transfer in restoration projects.