

# Influence of abiotic factors on the germination and postgermination stages of *Limonium tobarrense*: a study to establish its management measures.

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## INTRODUCTION

Understanding the community assembly rules is crucial for explaining ecological patterns and, in consequence, proposing adequate management measures. Vegetative traits of different *Limonium* species are responsible that they appear within specific soil conditions of saline habitats. However, seed traits contribute to shape plant fitness and niche competition during its first stages in stressful environments. These abiotic factors might be more restrictive in the plant zonation of endemic species of the genus *Limonium*, such as *L. tobarrense* in the Saltmarsh of Cordovilla.

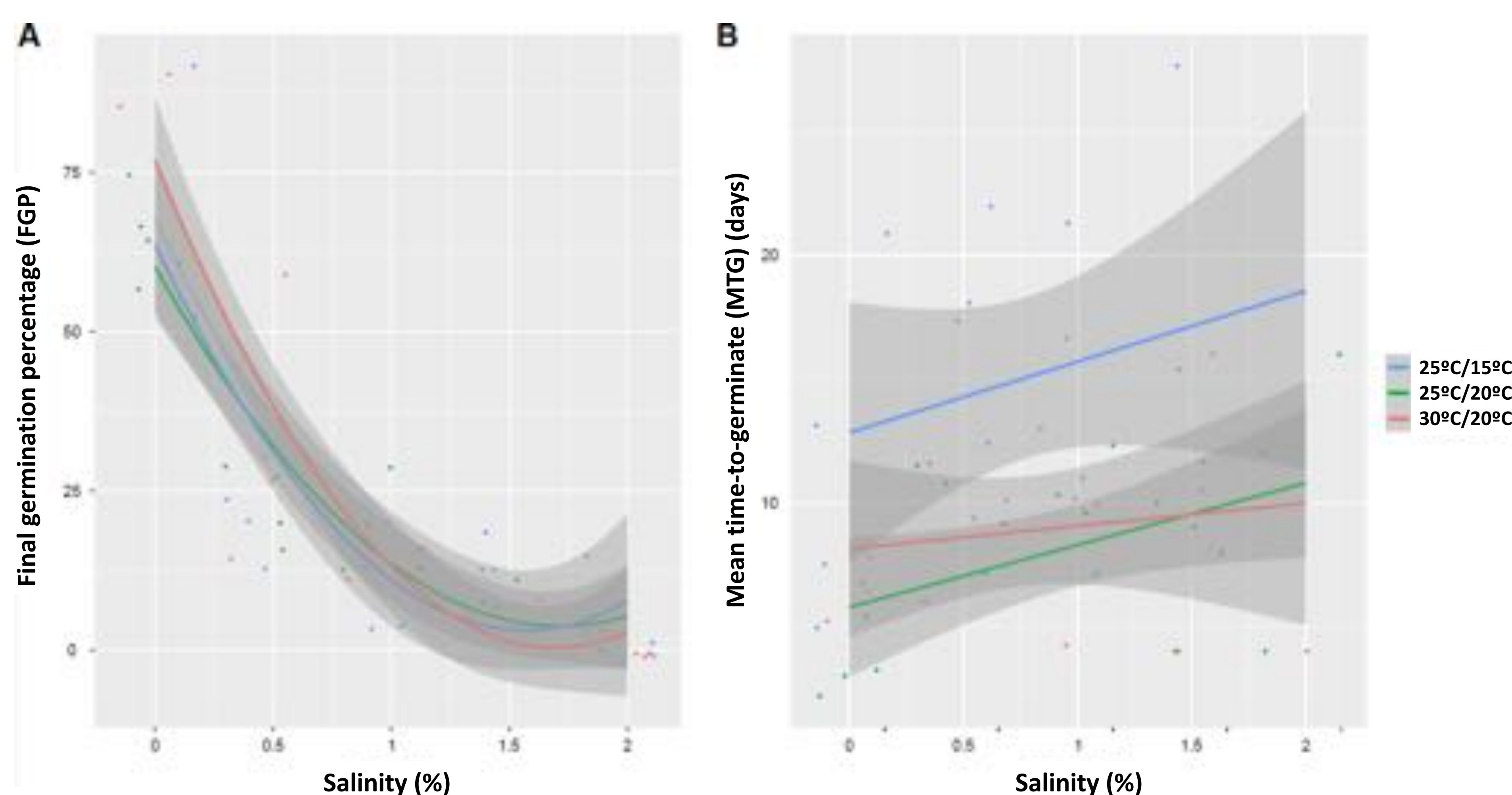
## GOAL

- Assessing of environmental factors related to the germination and postgermination establishment of the endemism *L. tobarrense* within the saline habitat.
- Disentangling the assembly processes during *L. tobarrense* early life stage.
- Defining optimal management and conservation measures.

## METHODS

- Experiments were performed to determine the effects of different salinities (0%, 0.5%, 1%, 1.5% and 2% NaCl) on seed germination under three combinations of day/night temperature regimes (30°C/20°C, 25°C/20°C and 25°C/15°C). Final germination percentage (FGP) and mean time-to-germinate (MTG) were recorded after 30 days.
- Postgerminative experiments were performed during 3 months using the same salinity gradient under 25°C/20°C day/night temperature. Morphological traits were measured after the postgermination development for each salinity treatment.

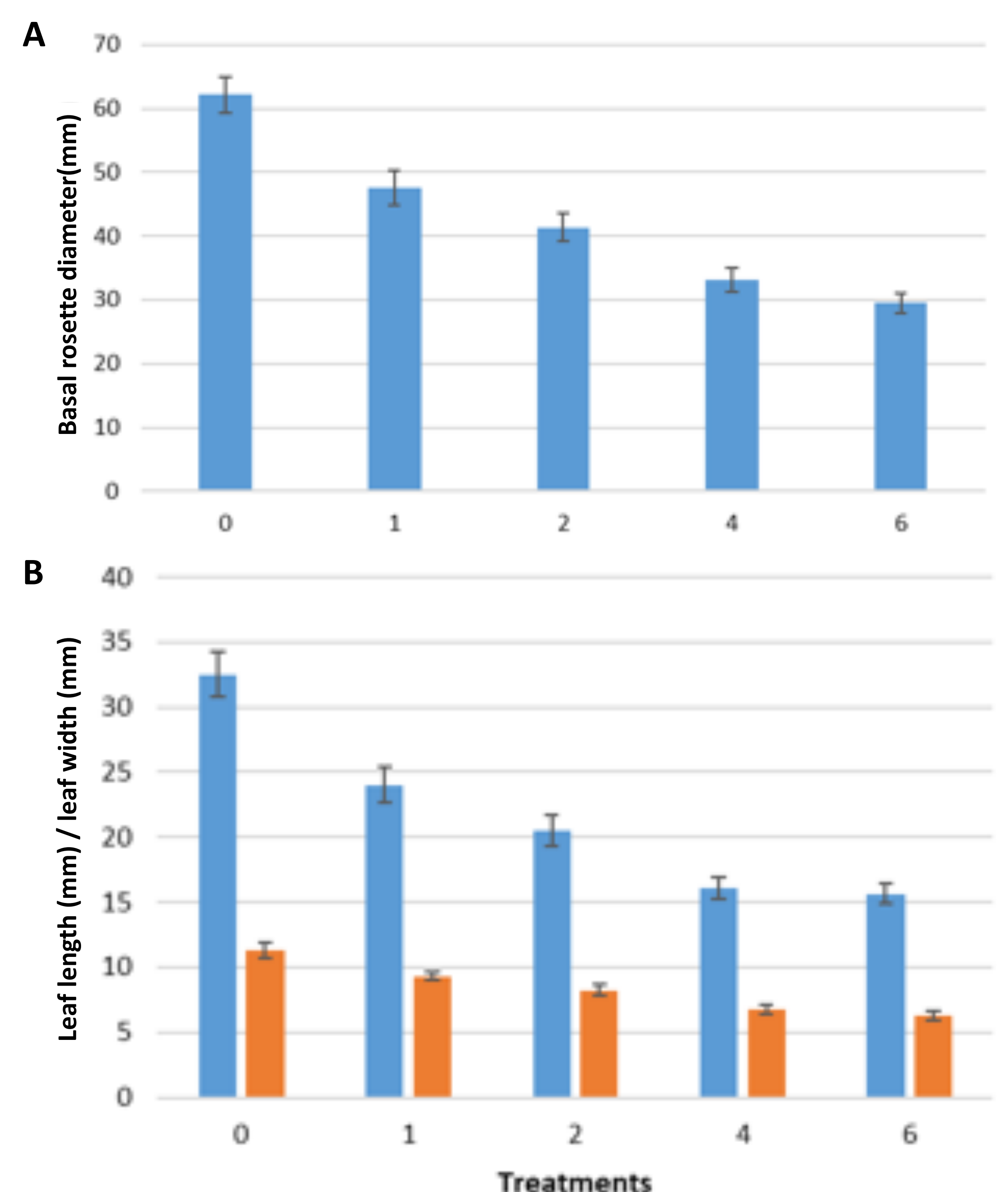
## RESULTS



**Figure 1.** (A) Final germination percentage (FGP) and (B) mean time-to-germinate (MTG) of *Limonium tobarrense* after 30 days of experiment at different temperatures (30°C/20°C, 25°C/20°C and 25°C/15°C) in different salinity treatments. Points were slightly scattered to avoid overlapping.

## CONCLUSIONS

- Salinity is a crucial factor in the early establishment of *L. tobarrense* and its postgermination development.
- Germination traits of *L. tobarrense* shape the local assembly along the salinity gradient.
- L. tobarrense* has a wide range of thermoperiod successful for its germination.
- Germination stage leads community assembly, shaping regeneration and adult niche.
- We suggest the adequate conservation and management of Saltmarsh of Cordovilla to favour the persistence of *L. tobarrense*.



**Figure 2.** (A) Basal rosette diameter and (B) leaf length and width (blue and orange, respectively) of *Limonium tobarrense* after its postgermination development in different salinity treatments.