

Plants for future in the climate change context

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Overview

According to FAO, by the year 2050, the world population will be around 9.5 billion people. In this context, agriculture should provide not only a large amount of healthy and safety food. However, this is somewhat difficult to achieve in the context of extreme temperature fluctuations.

Introduction

Beyond the impacts on biodiversity and wildlife habitats across the planet caused by climate change, also agricultural soil, strongly affecting the productivity. Salinity is the most widespread constraints, affecting up to 7 % of the world's total land area.

The aim of this paper is to describe the behavior of some seeds on different cultivation substrates containing lower or higher salinity concentrations, temperatures and humidity.

Methods

- **In laboratory**, for seeds germination assay, Petri dishes (15 cm diameter) were lined with filter paper (both on the top and on the bottom) and sterilized. Each dish received 8 ml of NaCl solution (0.2%, 0.6%, 1.2%, 2.4%) and distilled water was used as control.
- **In greenhouse**, the seeds were sowed on two types of soil, S1 – Dambovită, and S3 – Ialomița, also in peat as control.
- Exterior radiation, temperature and humidity of greenhouse are shown in Figures 1, 2 and 3.

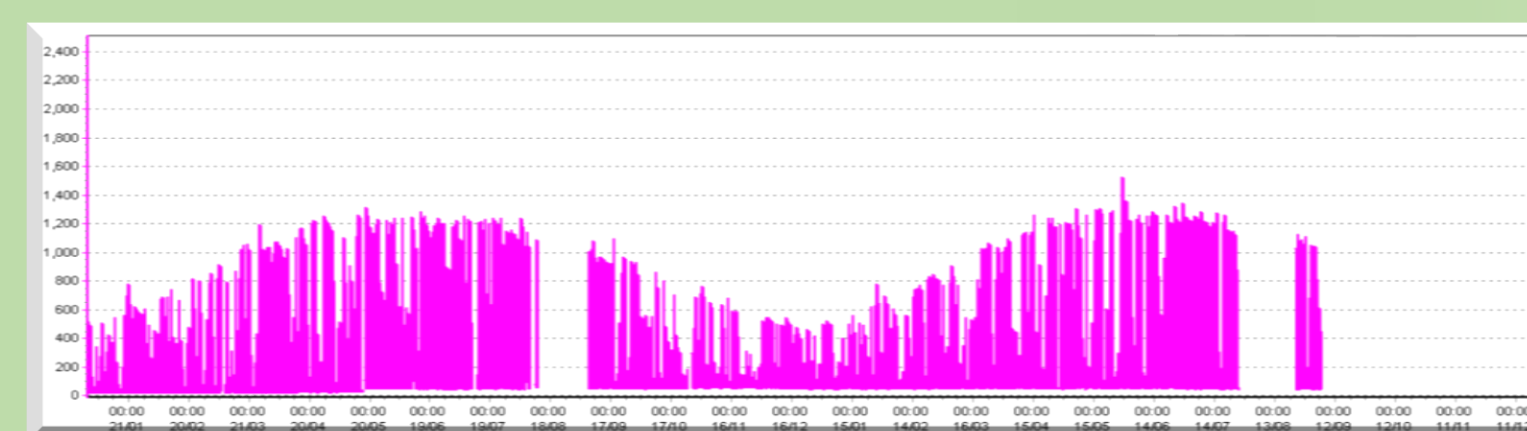


Fig. 1. Exterior radiation

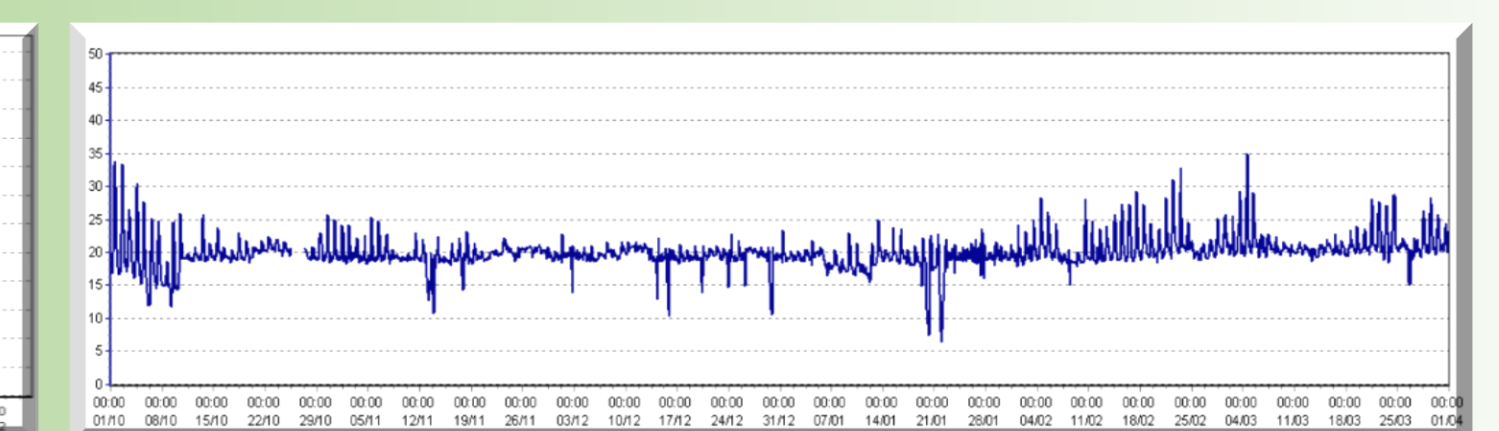


Fig. 2. Temperature

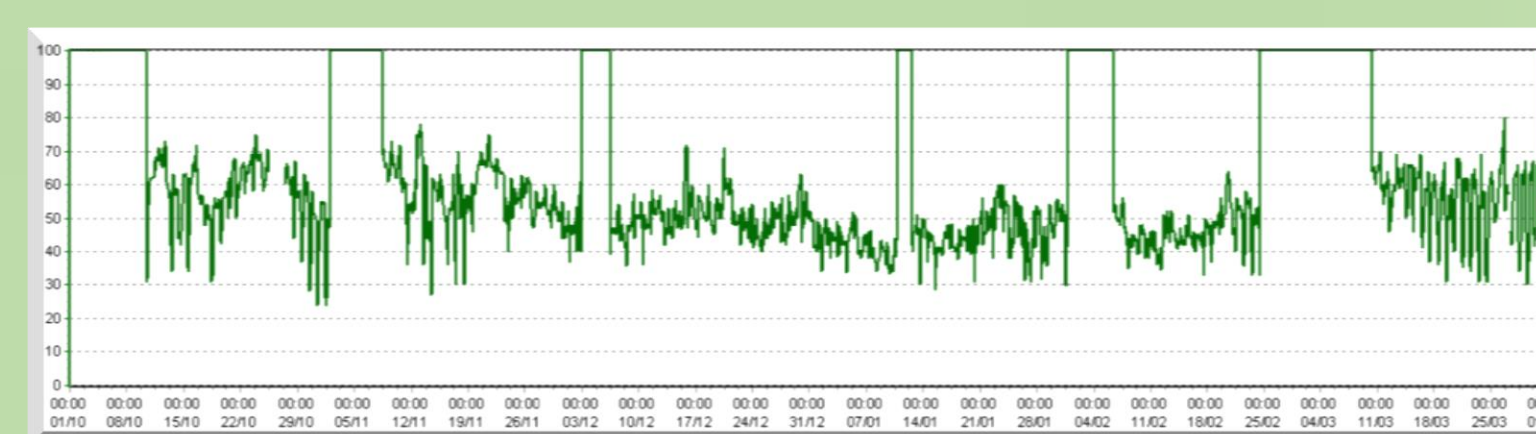
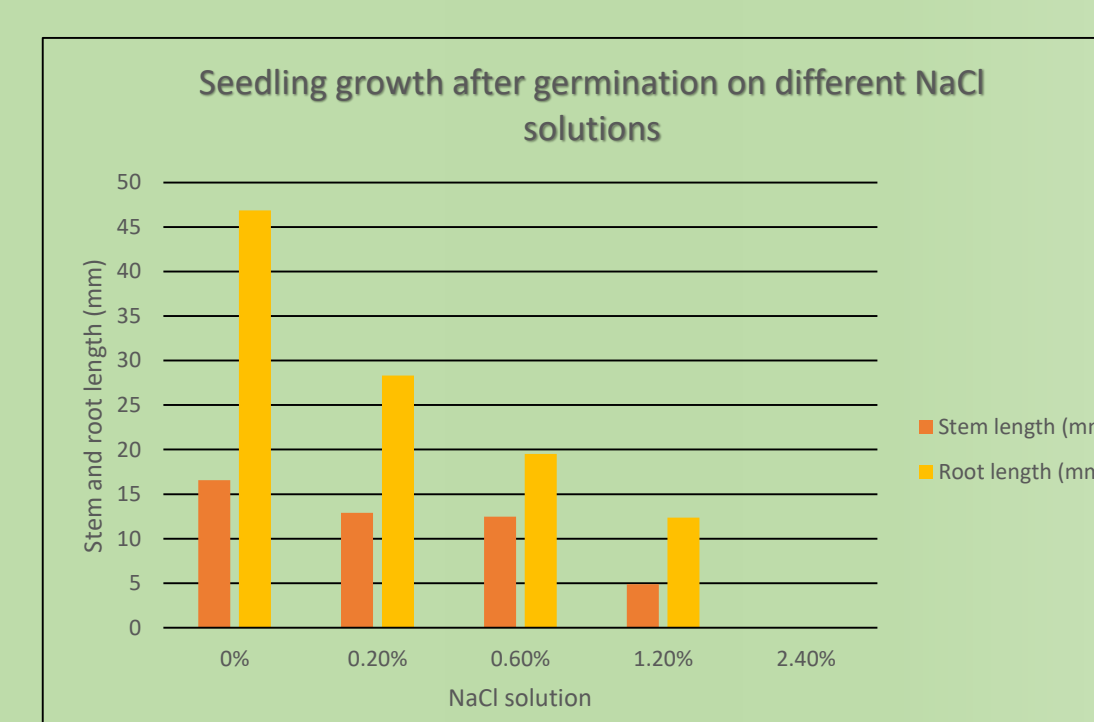
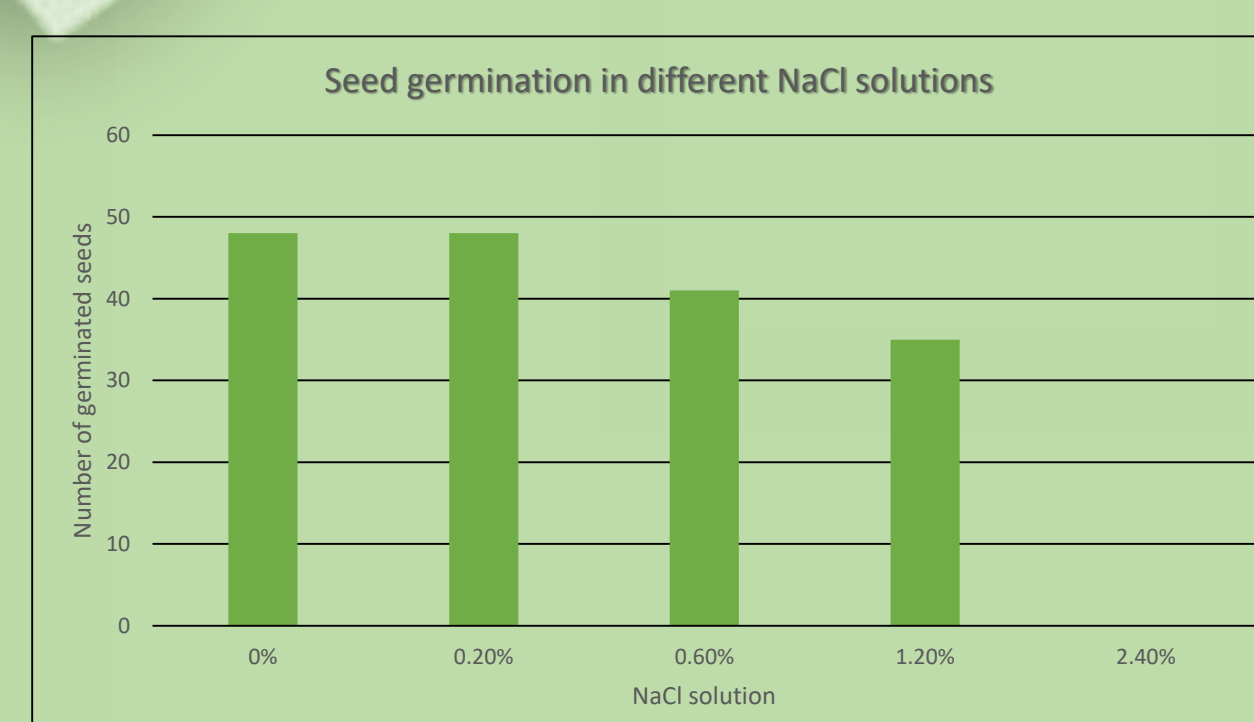


Fig. 3. Humidity

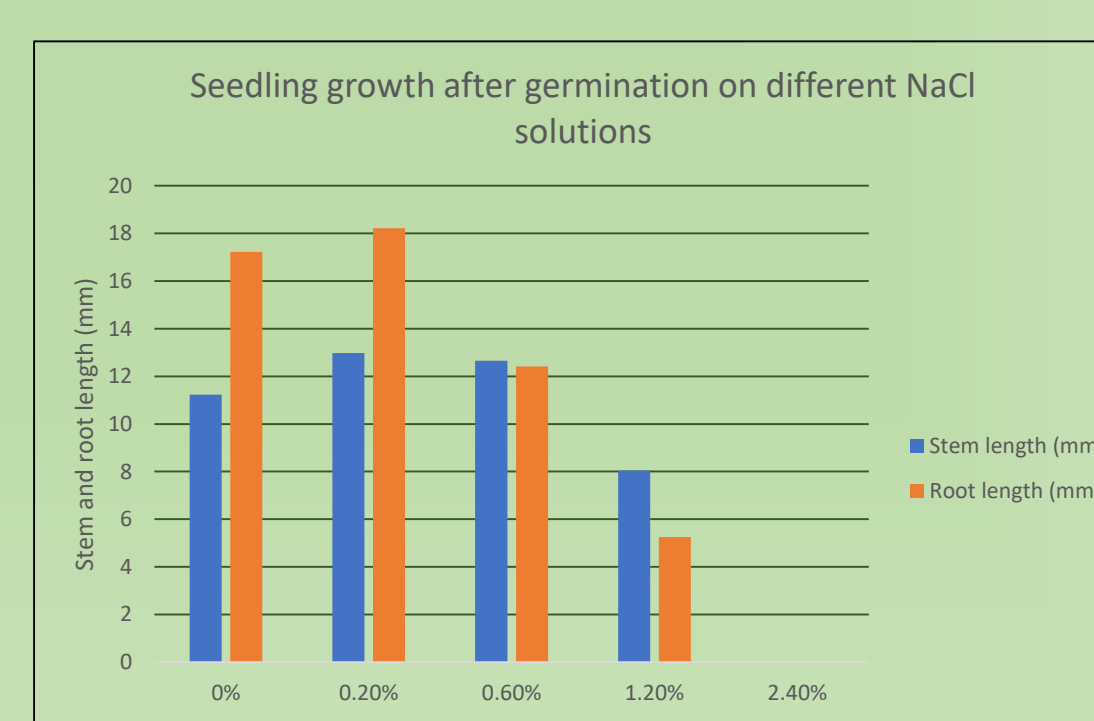
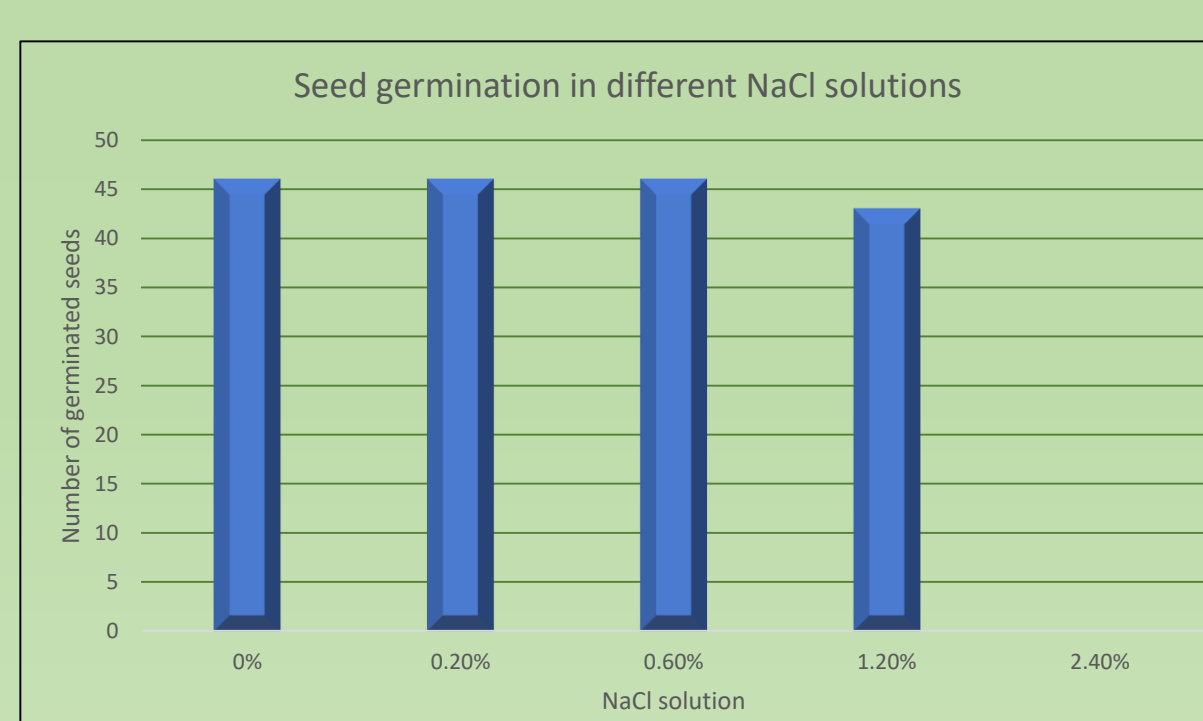
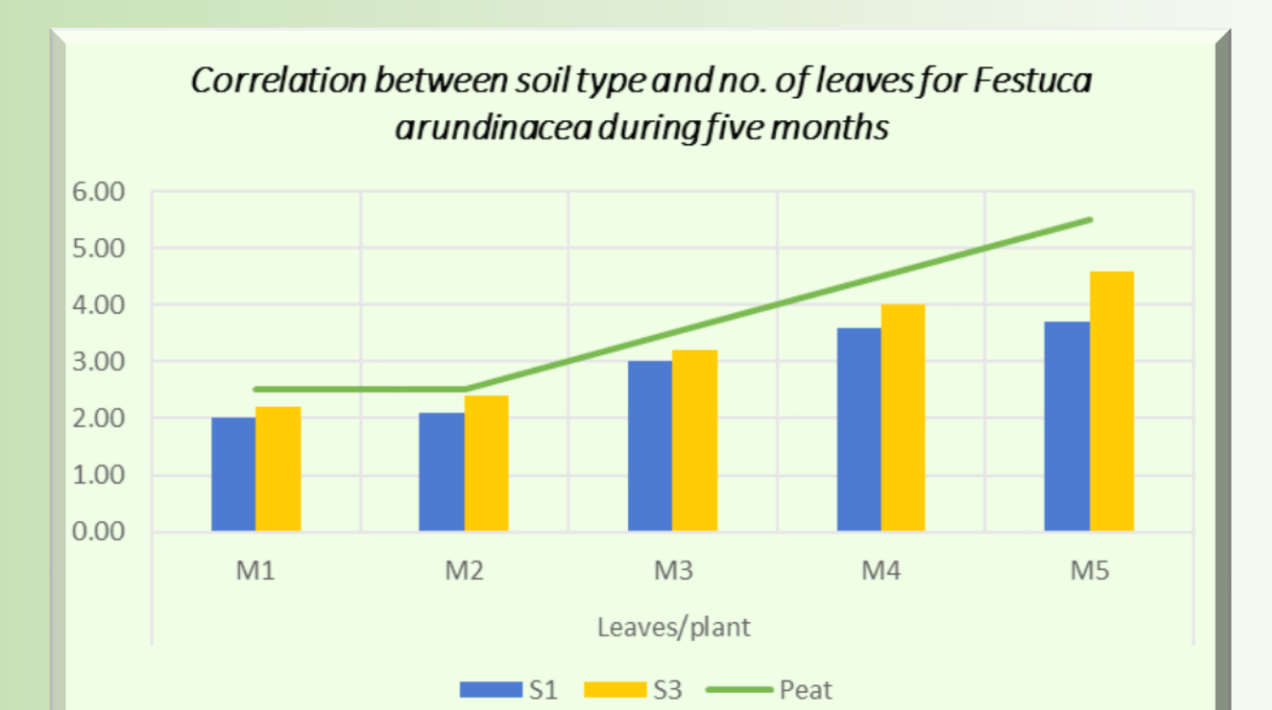
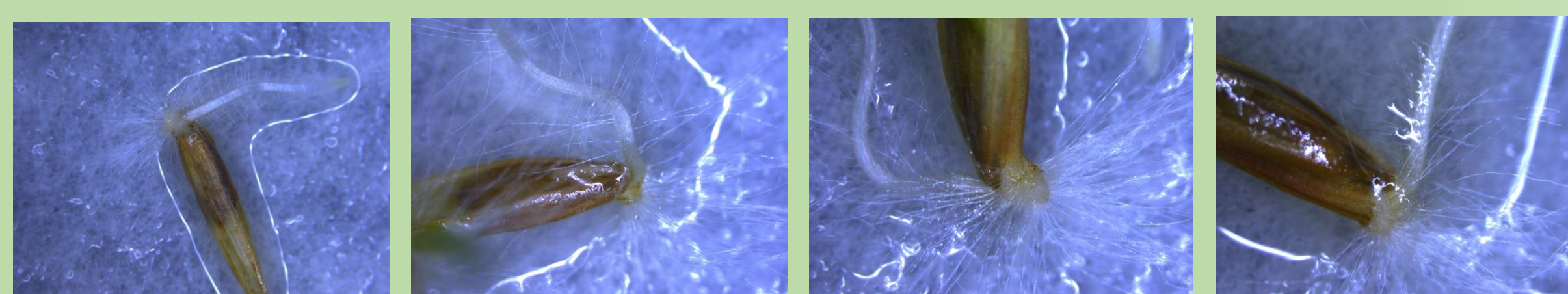


Results

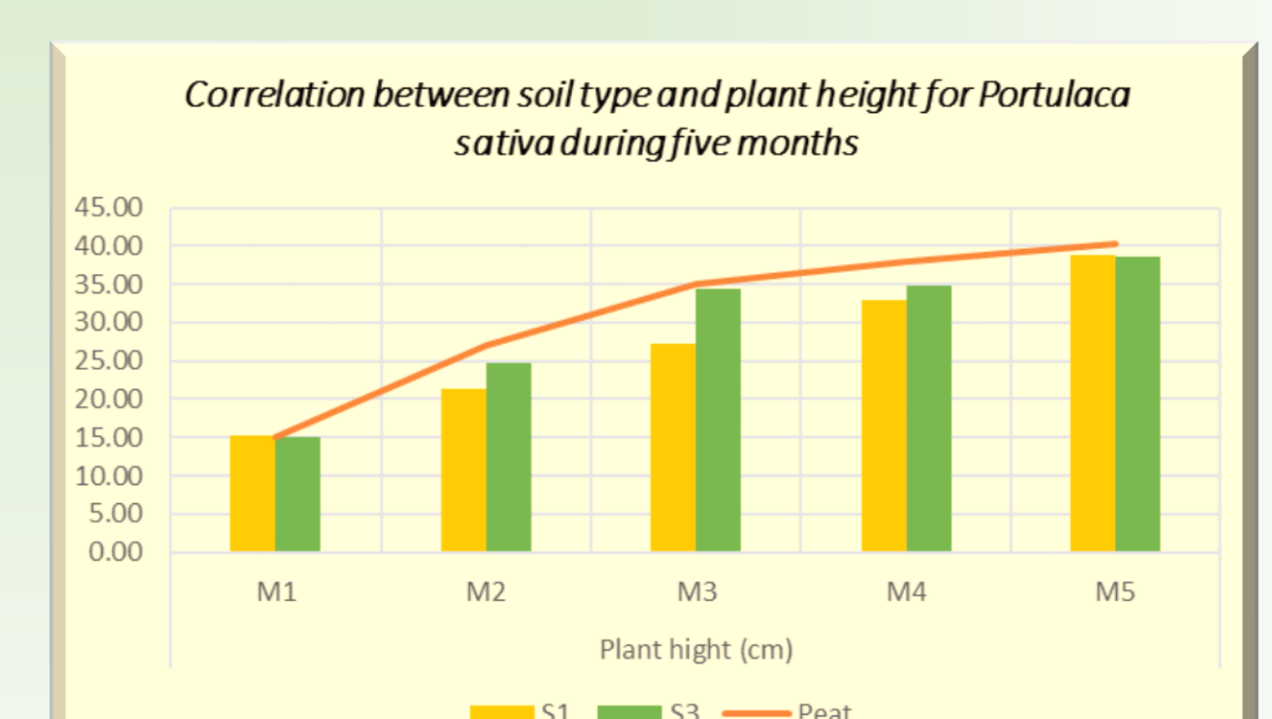
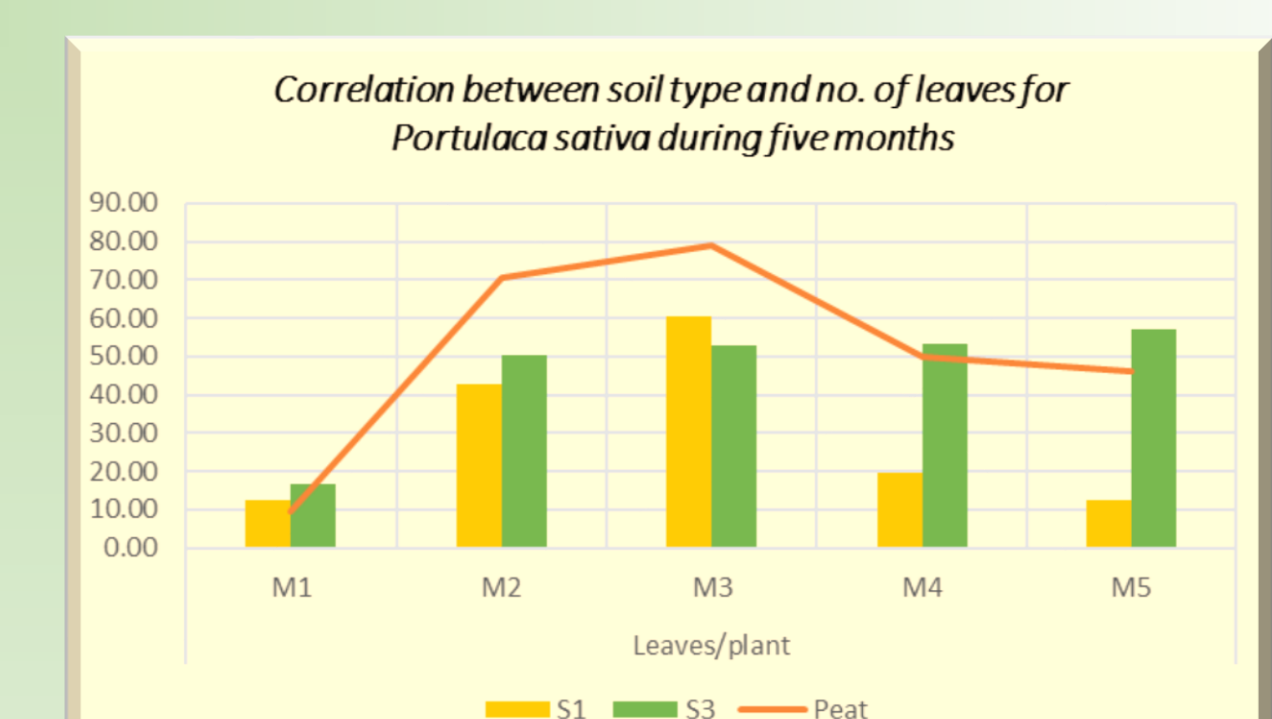
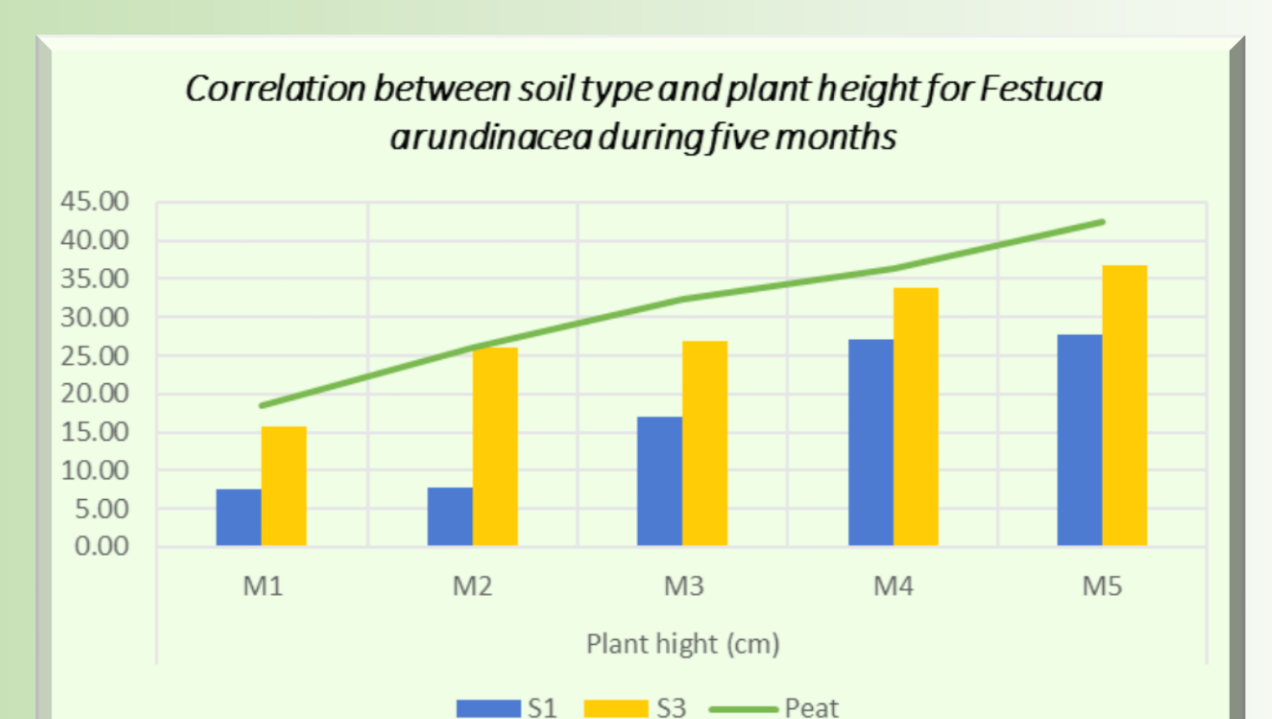
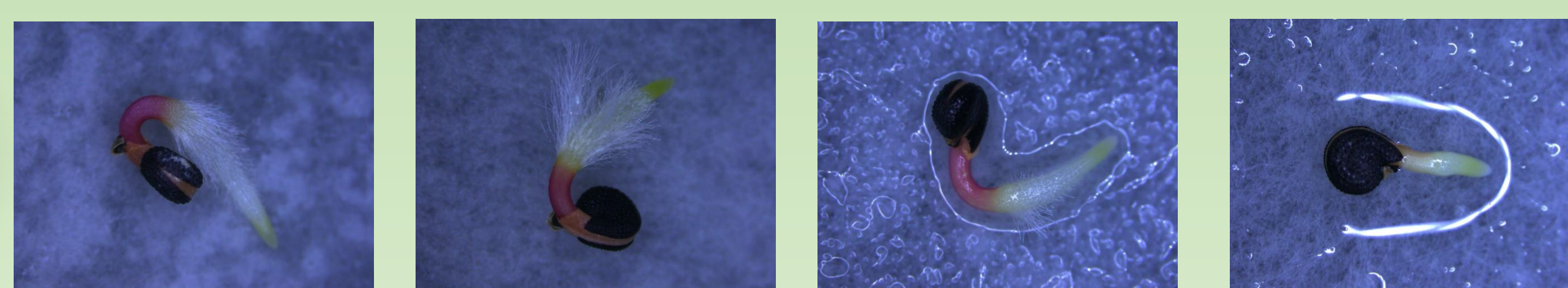
- The results obtained at the end of the experiment are presented in the graphs and images of the right side.
- Also, in the graphs are presented the correlations between soil type and plant characteristics.



Festuca arundinacea



Portulaca sativa



Conclusions

- The percentage of germination, growth and development decreases with increasing NaCl concentration for *Festuca arundinacea*.
- The percentage of germination, growth and development are stimulated at 0.2% NaCl concentration for *Portulaca sativa*.
- *Portulaca sativa* adapted better to the soil S1 than *Festuca arundinacea*.
- S3 is suitable both for *Portulaca* and *Festuca* sp.

Acknowledgements

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