

## **Salt Stress Affects Growth, Nutrition and Anatomy of *Stipa lagascae*: A Psammophile Grass in Southern Tunisia**

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**Abstract :** In arid and semi-arid regions, salinity represents a major constraint towards plants' growth. *Stipa lagascae*, a psammophile grass, is a promised species since its economic and ecological interests. Our study aims to explore the effects of different salt concentrations (0; 100; 200; 300 and 400 mM) on physiological, biochemical and anatomic parameters. Salt stress was applied on *S. lagascae* plants cultivated under controlled conditions. Results show that salinity reduces biomass production especially when plants are subjected to severe stress (>200 mM NaCl). Concerning the nutritional level, the fact of enriching soil with NaCl, leads to an accumulation of Na<sup>+</sup> against other nutritional elements (K<sup>+</sup>, Ca<sup>2+</sup>). To maintain tissues hydration, *S. lagascae* established osmotic adaptation by accumulation of proline and soluble sugars. Salt stress affected significantly root and foliar anatomy. Indeed, plants increased their vessels' diameter and mesophyll surface. *S. lagascae* plants reduced also the surface of the belluforme cells to defeat dehydration. According to our results, *S. lagascae* seems to be a tolerant plant at acceptable concentrations that do not exceed 6g/l.

**Keywords :** anatomical adaptations, mineral nutrition, plant growth, salt stress, *stipa lagascae*

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