



## Compost amendments to alleviate saline water stress on organic green bean (*Phaseolus Vulgaris* L.) cultivated in sandy and clay soils under arid climate

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Salinity is one of the most important abiotic stresses that decrease yields of most crops around the world, especially in arid and semi-arid regions. The addition of organic amendments is one of the mitigation methods that has been tested in our experiment. In this context, we have investigated the effect of organic amendment (compost) on the green bean resilience to the water salinity in sandy and clay soils. Two levels of salinity of irrigation water (1.5 and 4 dS / m) with and without compost amendments. Most parameters measured (yield, chlorophyll, proline, content of the mineral elements) in this study were significantly influenced by the salinity levels and organic amendments. The use of compost decreased the amount of sodium in the soil and plant, even for a high salinity level. The decrease in Na<sup>+</sup> resulted in an increase in the level of other mineral elements such as calcium, nitrogen, magnesium, and potassium. In the case of the clay soil, the addition of compost with the use of low saline irrigation water gave a higher yield (17.6%) compared to the control (without compost amendment). Increasing the salinity level of irrigation water to 4 dS / m resulted in a 43.2% reduction of the yield in the amended soil. For sandy soils, the yield was higher (10.6%) in amended soil with compost compared to the control at 1.5 dS / m level. The increase of salinity level to 4 dS / m resulted in a yield decrease of 46.7% with organic amendment and 51.8% in the absence of organic amendment. The results of this work indicate that the addition of organic matter reduces the negative effects of salinity by improving soil physico-chemical conditions, reducing salt accumulation, increasing photosynthetic pigments and the content of proline in the plant, promotes the absorption of mineral elements and decreases the effect of salt stress on vegetative growth.

**Key words:** Salinity, stress, organic amendment, irrigation water, green beans, yield, proline, mineral elements.