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**SALINITY EFFECT ON MORPHOPHYSIOLOGICAL TRAITS OF
ISABGOL (*PLANTAGO PSYLLIUM* L.)**

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Isabgol used for antitussive and anti-inflammatory drugs, due to the existence of mucilage in the seeds. seeds of isabgol are used commercially for the production of mucilage. In order to study the effect of salinity stress on morphological and physiological traits of isabgol (*plantago psyllium* L.), an experiment was conducted in greenhouse as a randomized complete block design with four replications. Salinity levels applied were 0, 50, 100, 150, 200, 250, and 300 mmol/L using mixture of NaCl, MgSO₄, MgCl₂, and CaCl₂ with the ratio of 6:2:1:1. Irrigation with water salinity started after plant establishment in pots and continued to before plant harvest. Plant fresh and dry weight, plant height, leaf area, chlorophyll fluorescence, chlorophyll content, relative water content (RWC), and electrolyte leakage (EL) was measured. Analysis of variation and duncan test ($p < 0.05$) were done by SAS software to demonstrate the salinity effect on these traits. Results showed that the effect of salinity levels on the all of mentioned traits was significant, except minimum fluorescence (F_o) and quantum efficiency of photosystem II (ΦPSII), whereas, this effect on fresh weight, leaf area, electrolyte leakage, and relative water content was very significant. The results showed that with increasing salinity levels, all measured traits were decreased, except F_m, ΦPSII, and RWC. Among measured traits, leaf area, variable fluorescence (F_v), and F_m had most sensitive to salinity increase, whereas, F_o and ΦPSII were not significantly affected by salinity in this plant. It is indicated that, in 250 and 300 mmol/L levels of salinity, the growth of plants stopped and plants could not complete their life cycle. Also, results showed that the significant decrease in morphological traits was initialled from 50 mmol/L salinity. Salinity is one of the increasing problems in the world which include the wide area of Iran. Study of salt tolerance in medicinal plants for cultivating in saline lands is valuable. In these conditions, morphological and physiological traits may be reduced, and growth may be delayed. In overall, isabgol is not a tolerant to high levels of salinity. Morphological traits are suitable and useful indicator and physiological traits are simple and fast indicator for assessment of salinity effect in isabgol.

References

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