

# Impact of salinity on photosynthetic performance in Arabidopsis accessions



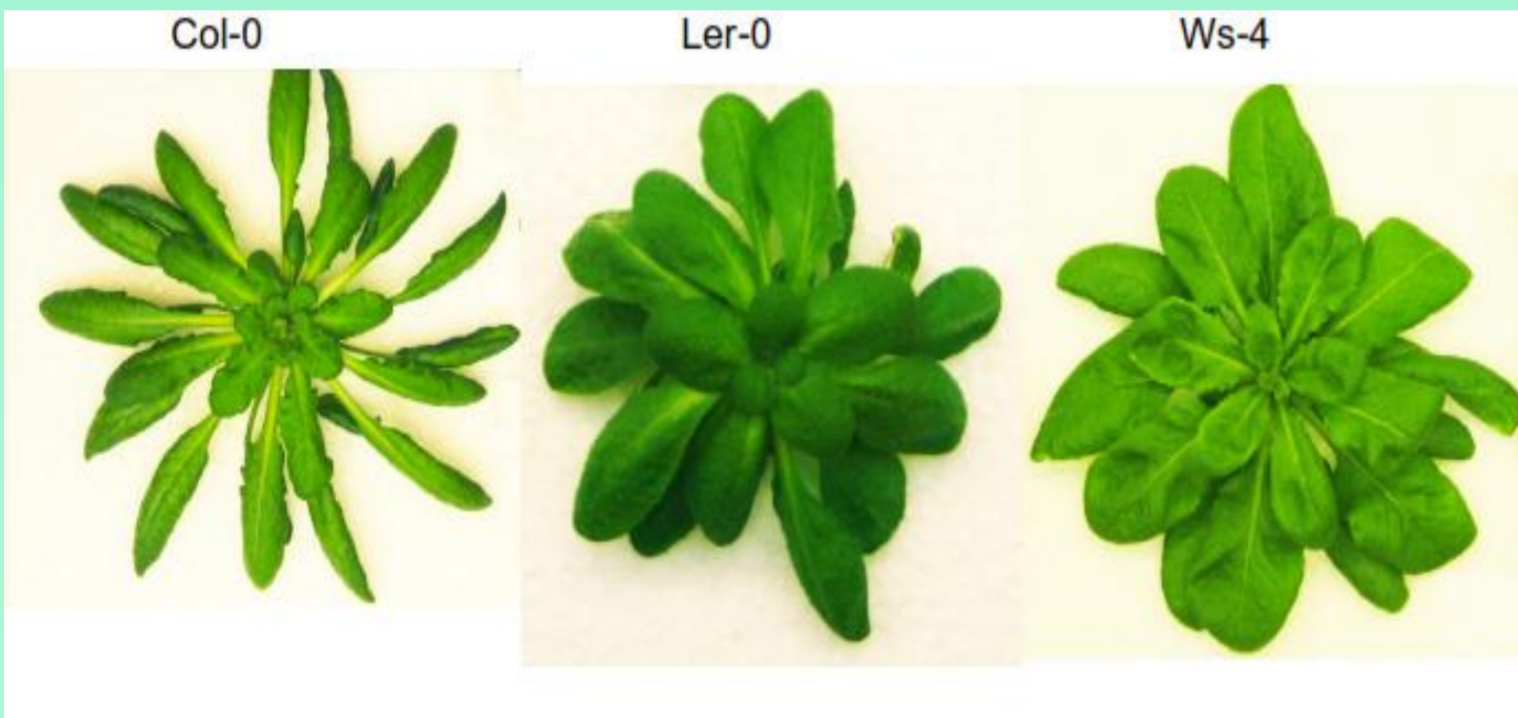
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## Introduction:

- Salinity is major abiotic stress factors in current worlds agriculture.
- Soils containing 30 mM salts are considered as saline.
- Irrigation waters contain salts <2.5mM.
- Arabidopsis accessions: Columbia (col-0), Wassilewskija-4 (Ws-4), Landsberg eracta (Ler-0).



**AIM:** To investigate the salt tolerance and photosynthetic performance in Arabidopsis accessions.

## METHODS:

- Stress treatment (NaCl Salt concentrations : 0mM, 50mM, 75mM, 100mM) for 1 week.
- Recovery treatment in hydroponic system for one week(Without NaCl)
- Chlorophyll pigment analysis(Lichtenthaler., 1983)
- Chlorophyll fluorescence studies (NPQ & ETR)
- Proline analysis (Bates et al., 1973).

## Results:

- Decrease in chlorophyll a during stress conditions.
- Change in NPQ curve during recovery period.
- Increase in proline levels during stress & decrease during recovery period

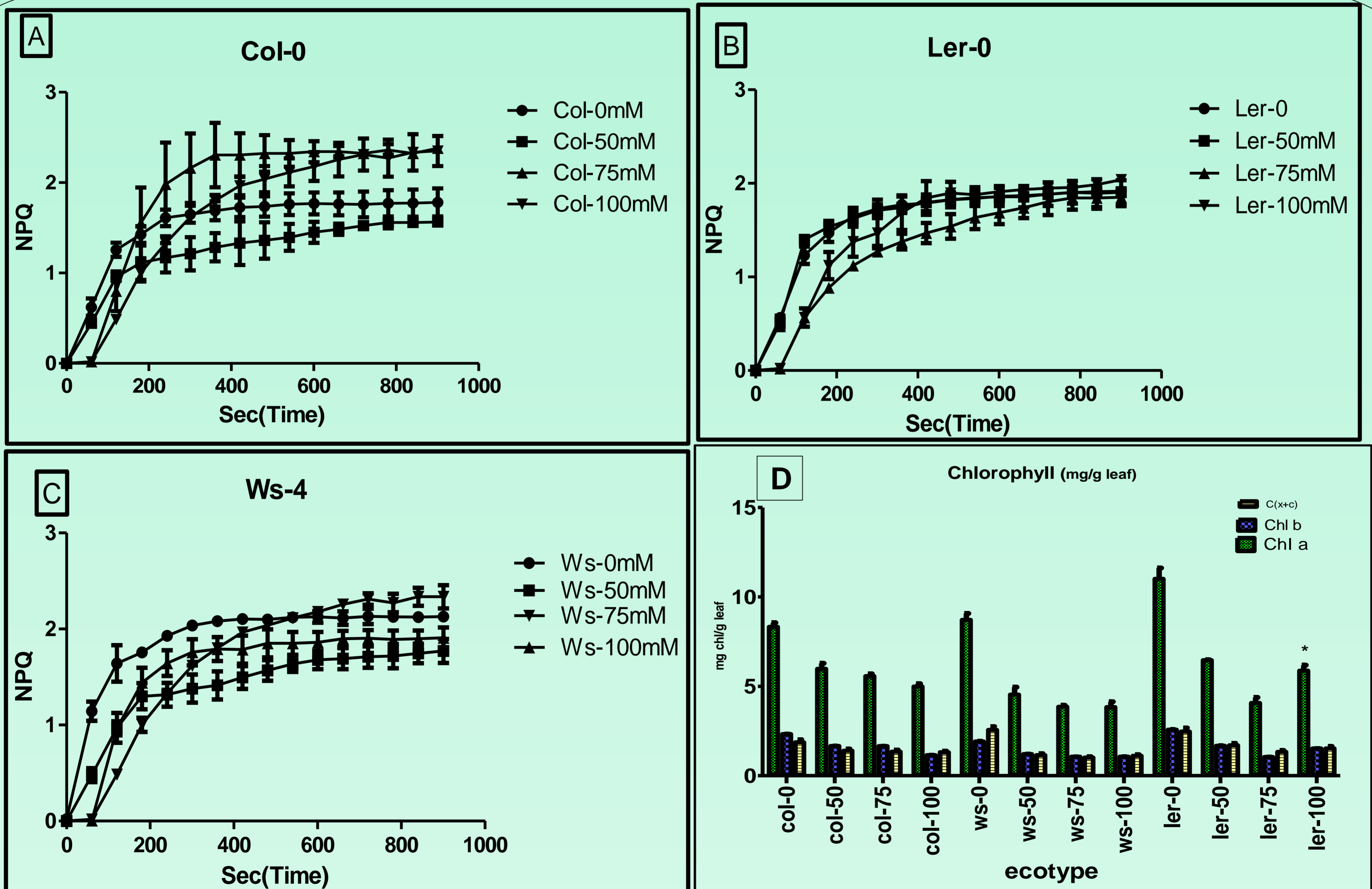


Fig 2: NPQ readings for A) Col-0, B) Ler-0, C) Ws-4, during recovery phase D) chlorophyll content in 1 week stressed plants (mg/g leaf)

## Conclusions:

- Salinity tolerance in *Arabidopsis thaliana* is 100mM in hydroponic system. Increasing salinity impairs plant growth.
- Increasing stress decreases the photoprotective ability of the Photosynthetic apparatus.
- Col-0 accession showed a higher tolerance compared to Ws-4 & Ler-0.