

Response of seashore paspalum accessions to salt stress

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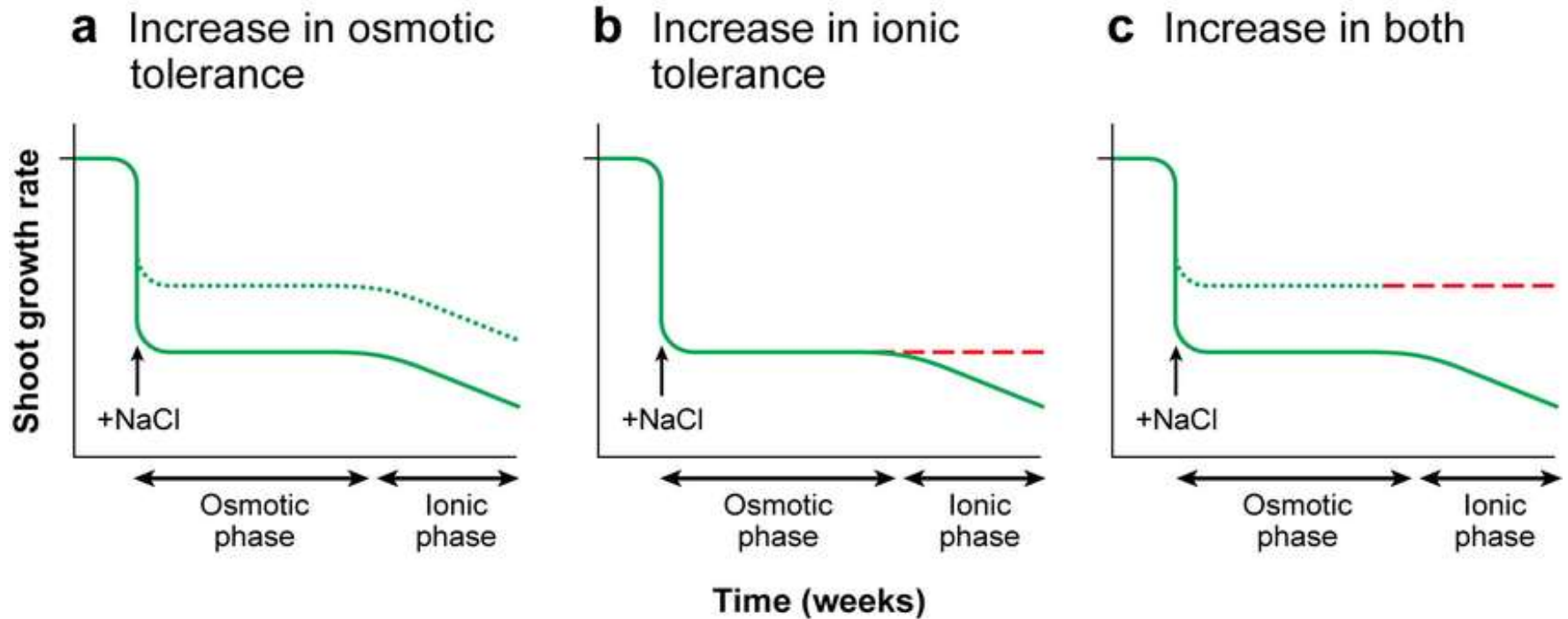
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Project Goals

- Assess transcriptomic differences in response to short-term salt exposure, medium-term salt exposure, and recovery by utilizing RNA-seq
- Determine differences in ion accumulation in leaf and stolon tissue after salt-shock scenario

Salt response occurs in two distinct phases



In rice, 10% of transcripts are differentially expressed within 1 hr of salt exposure

Salt shock screen



15 genotypes
being
assessed
(biomass/leaf
firing)

Reduce to 30 dS/m
for 14 days

- Sample roots/leaves after 1 hr and 14 days
- Sample leaves for Na⁺ and K⁺ abundance at 14 days

Establishment at
10 dS/m (1
month)

- 2 tolerant genotypes
- 2 sensitive genotypes

Reduce to 10 dS/m

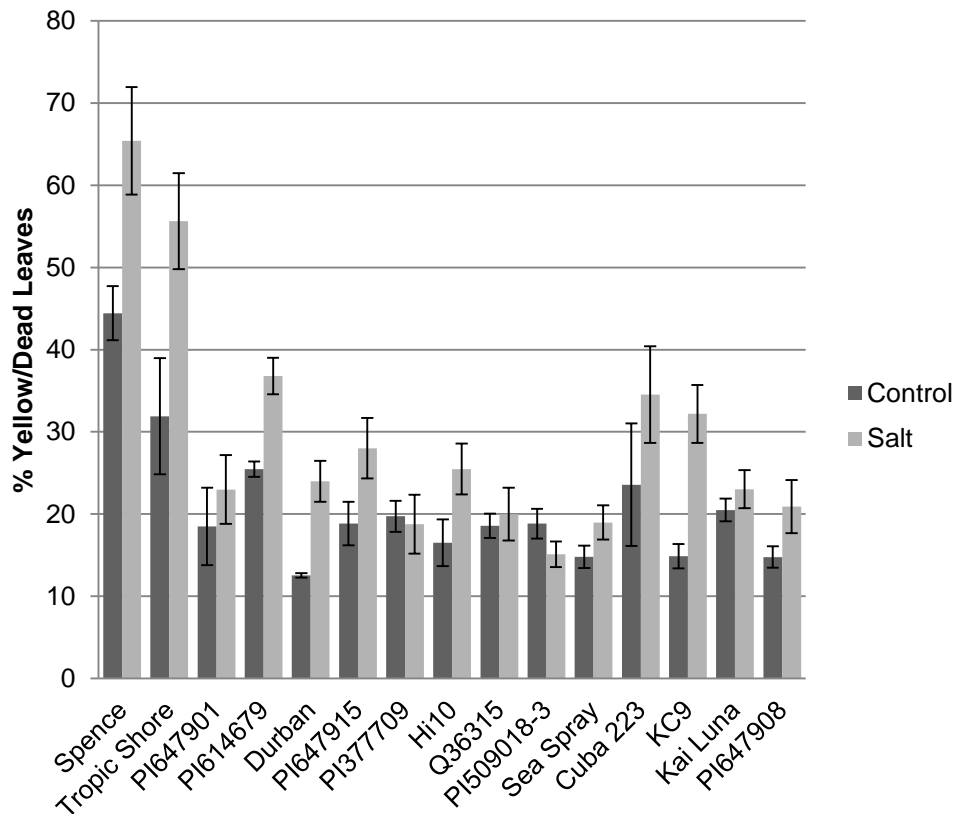
Sample roots/leaves
after 1 hr

Salt shock at 54
dS/m for 48 hrs

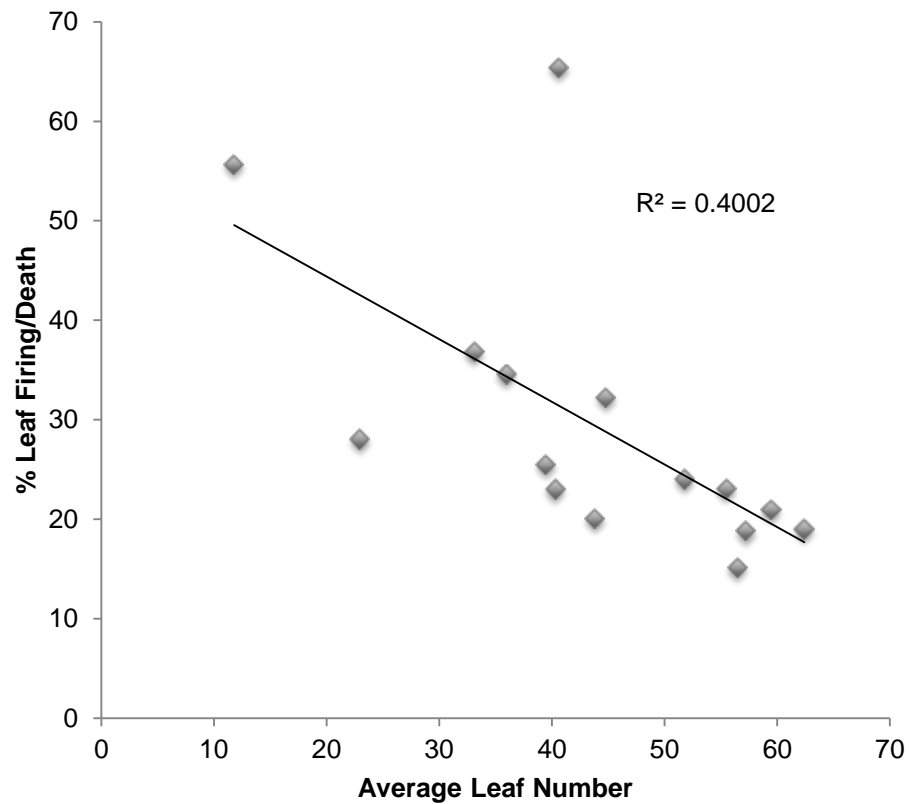
Sample roots/leaves after 1
hr, 4 hr, 24 hr, 48 hr

RNA-seq and ion
analysis

% Yellow/Dead Leaves Post Salt Shock



Leaf Number vs % Leaf Firing



Take Home Messages

- Differences in biomass and leaf firing are exhibited after 48 hour salt-shock treatment
- Sensitive and tolerant varieties can be distinguished
- Leaf number is correlated with decreased leaf firing after salt shock treatment

Future Plans

- Currently assessing sodium and potassium content in leaf tissue
- Conduct second salt shock screen at 70 dS/M
- Comparative transcriptomic analysis between halophytes and glycophytes under short-term salt stress

Thanks!

Collaborators

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