

Root Growth and PROJECTS

General Observations:

- Salt-stressed roots appear to be shorter + to have fewer LR's than control roots
- etr1, abi1 + aba1 all have shorter roots than WT (wild type)
- Not sure about ein2...

1cm



Today's lab -

- Mark off the tip of the roots
- Photograph the roots (handout)
- Import images onto computer (handout)
- Measure root length using NIH image (handout)

o Count LRs



- by eye
- use dissecting scope to count v. short, recently emerged roots + to verify that LRs are not adventitious roots.

o Assemble excel worksheet for

- 1) Root length data
- 2) LR data

Ea. group will have 2 worksheets

w data for WT and mutant seedlings

Submit worksheets to me - aplant@sfu.ca

PROJECTS

- o For your project you will work in groups of 2 - 3.
 - o You can use equipment / techniques that have been used for the course e.g. :
 - IRGA
 - O₂ electrode
 - pressure bomb
 - osmometer
 - Nitrate reductase assays
 - Root growth + LR production
- P/s**
H₂O relations
Mineral nutrition
stress physiology
hormone physiology
Plant development

You need plant material !

Available plant material :

1) Poplar - small trees in pots

2) Tomato plants

Ailsa Craig CAC; wild type genotype)

Flacca (ABA-deficient genotype)

Neverripe (ET-insensitive genotype)

TOS1 (mutant with altered ET/ABA responses)

ACOLAs (transgenic line w reduced ACO1 gene expression + $\therefore$ $\downarrow$ ET)

Moneymaker (wild type genotype)

3) Arabidopsis wild-type + mutant genotypes

abi-1

aba-1

etr-1

α -Dioxygenase knockout + over-expressors

This enz. plays a role in regulating root systems during stress.

Tubulin End binding protein mutants with gravitropic defects

Other plant material can be generated in a 2-week time period :

Peas

Corn

Bean

Spider plants

Need to think about this over the next
week so that we can plan appropriately,
Particularly with respect to plant material