Discoloration in Post-harvest Lettuce

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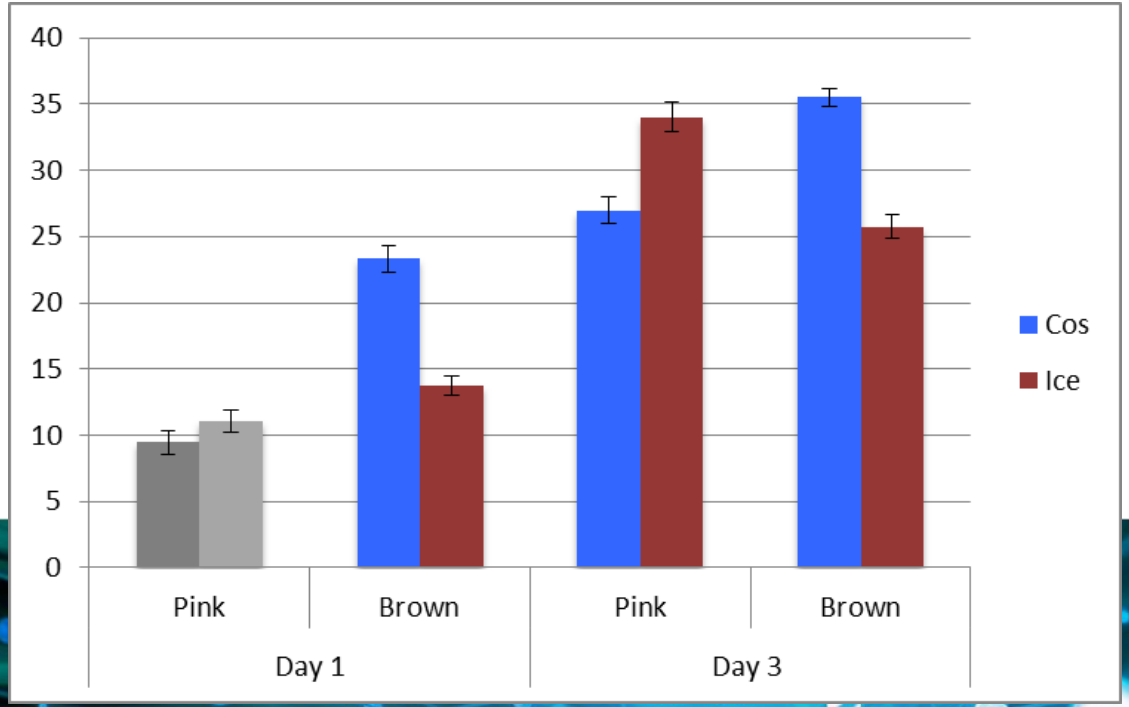
The problem!

Different morphotypes show different phenotypes



Cos type
browning > pinking

Iceberg type
pinking > browning

RIL mapping population contains two morphotypes (~50:50)

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Parents:

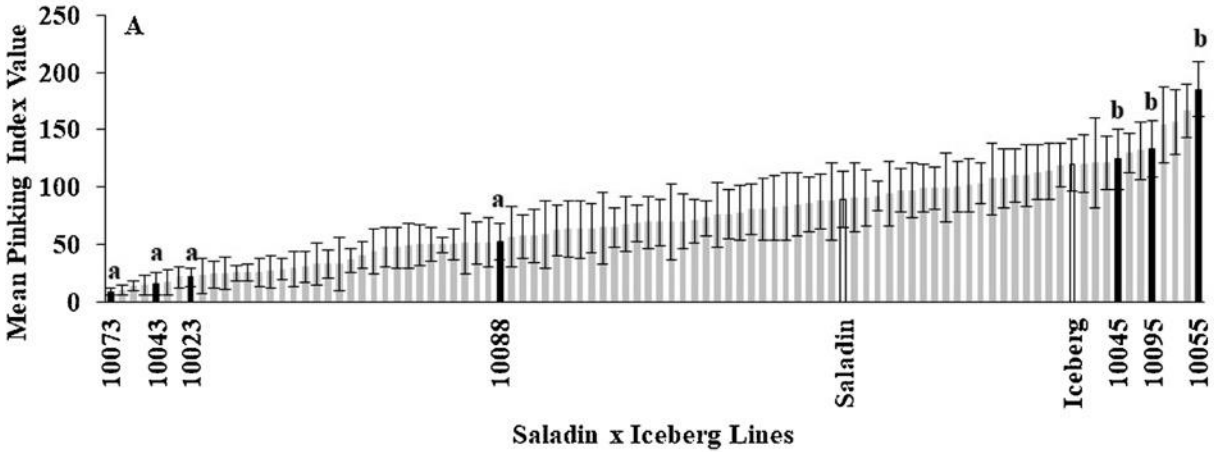
cv. Saladin (iceberg)

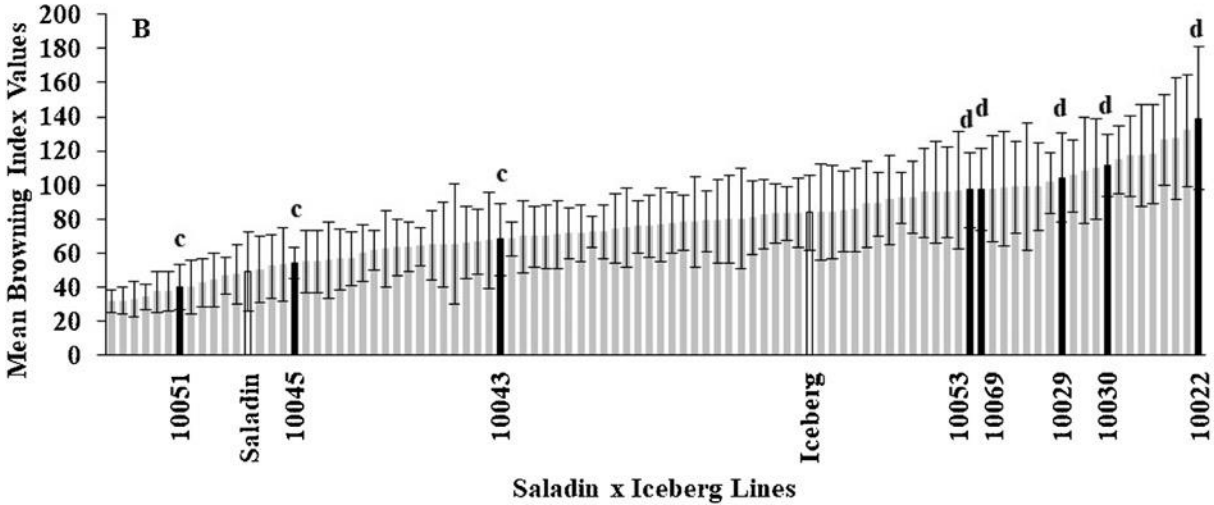
cv. Iceberg (batavian)

94 x RILs:

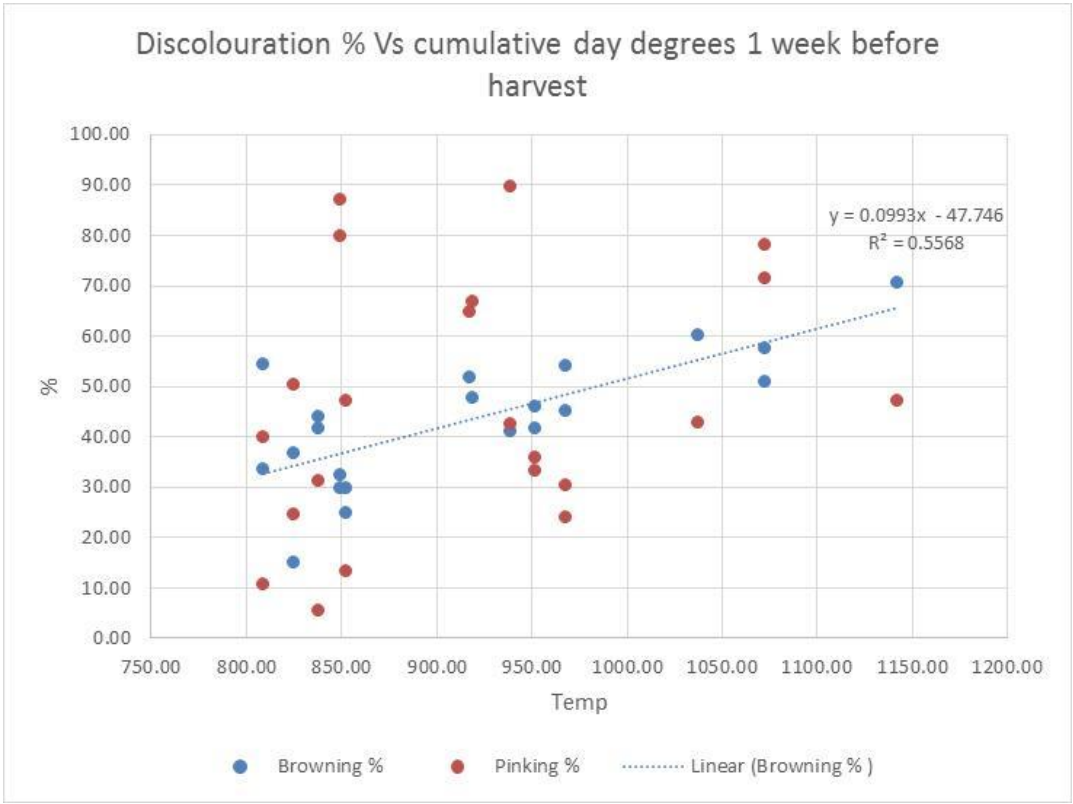
Cos type

Iceberg type

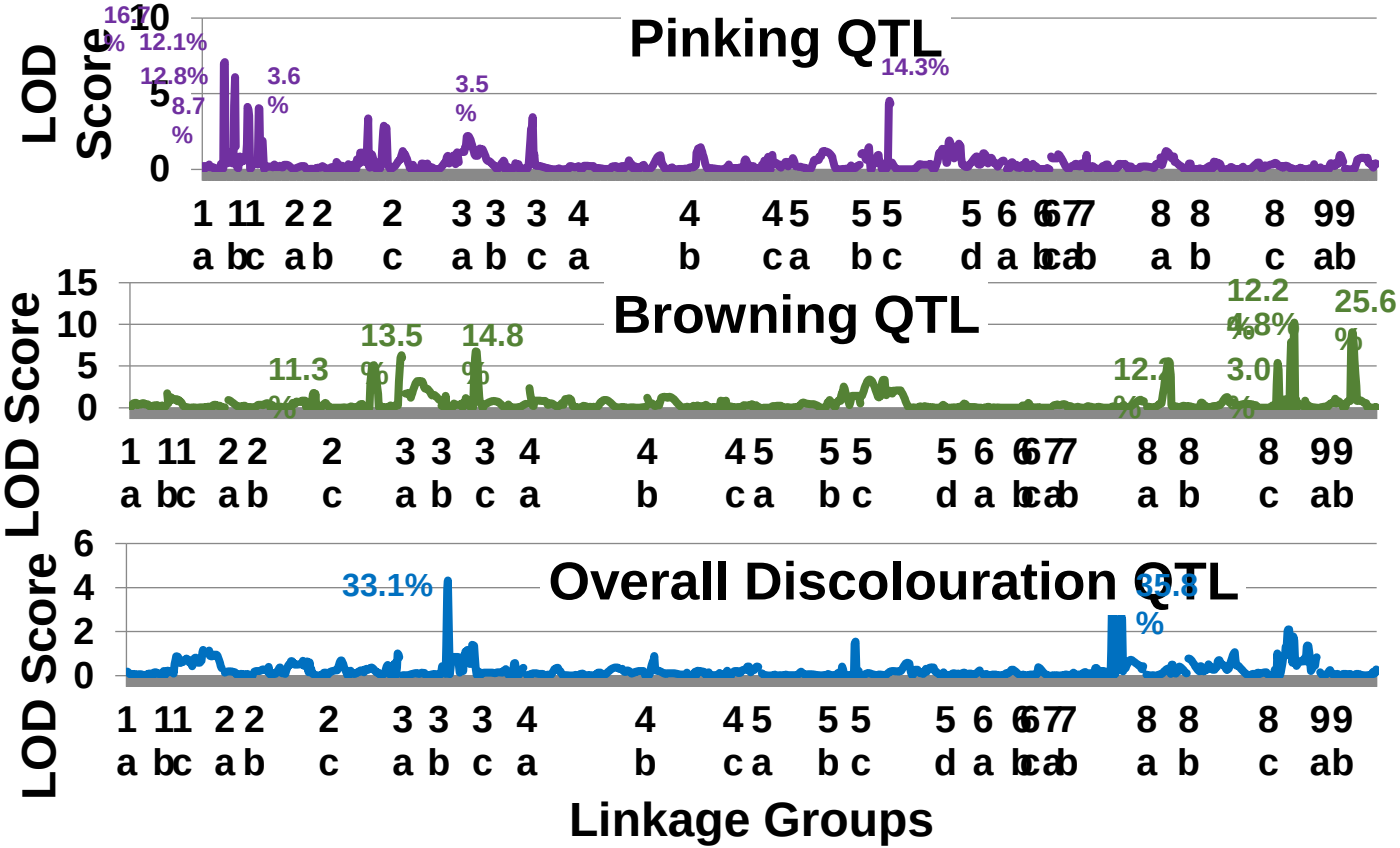

A
Mean Pinking Index Value
250
200
150
100
50
0
a
a
a
a
b
b
b
10073
10043
10023
10088
Saladin
Iceberg
10045
10095
10055
Saladin x Iceberg Lines


B
Mean Browning Index Values
200
180
160
140
120
100
80
60
40
20
0
c
c
c
d
d
d
d
d
10051
Saladin
10045
10043
Iceberg
10053
10069
10029
10030
10022
Saladin x Iceberg Lines

Environment effects browning not pinking



Phenotype QTL



Pinking and browning are different!

- They differ between morphotype
- Are generally inversely related
- Respond to environment differently

Elucidation of the biochemical pathways involved in two distinct cut-surface discolouration phenotypes of lettuce. Postharvest Biology and Technology 83, (doi.org/10.1016/j.postharvbio.2021.111753).

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BBSRC bioscience for the future

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