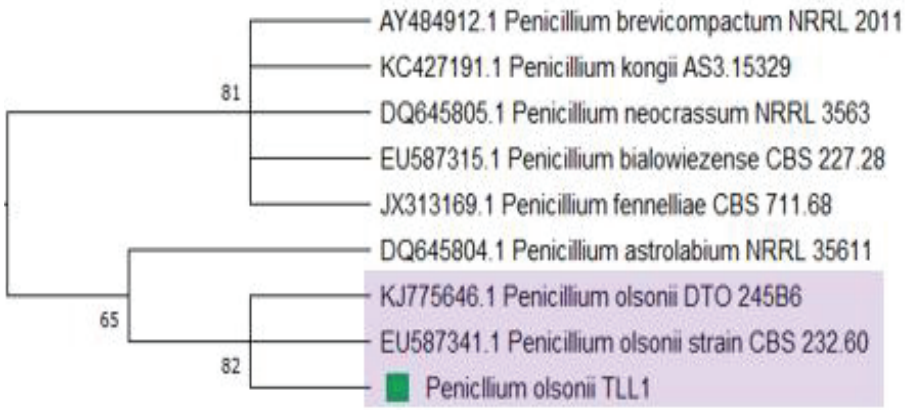
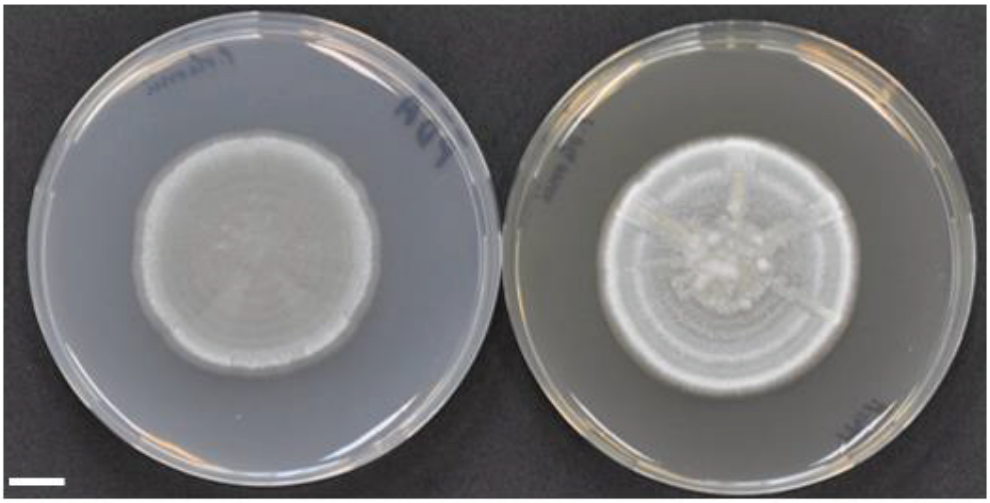
FIG. 1

A



B



PDA **MEA**

FIG. 1 (cont'd)

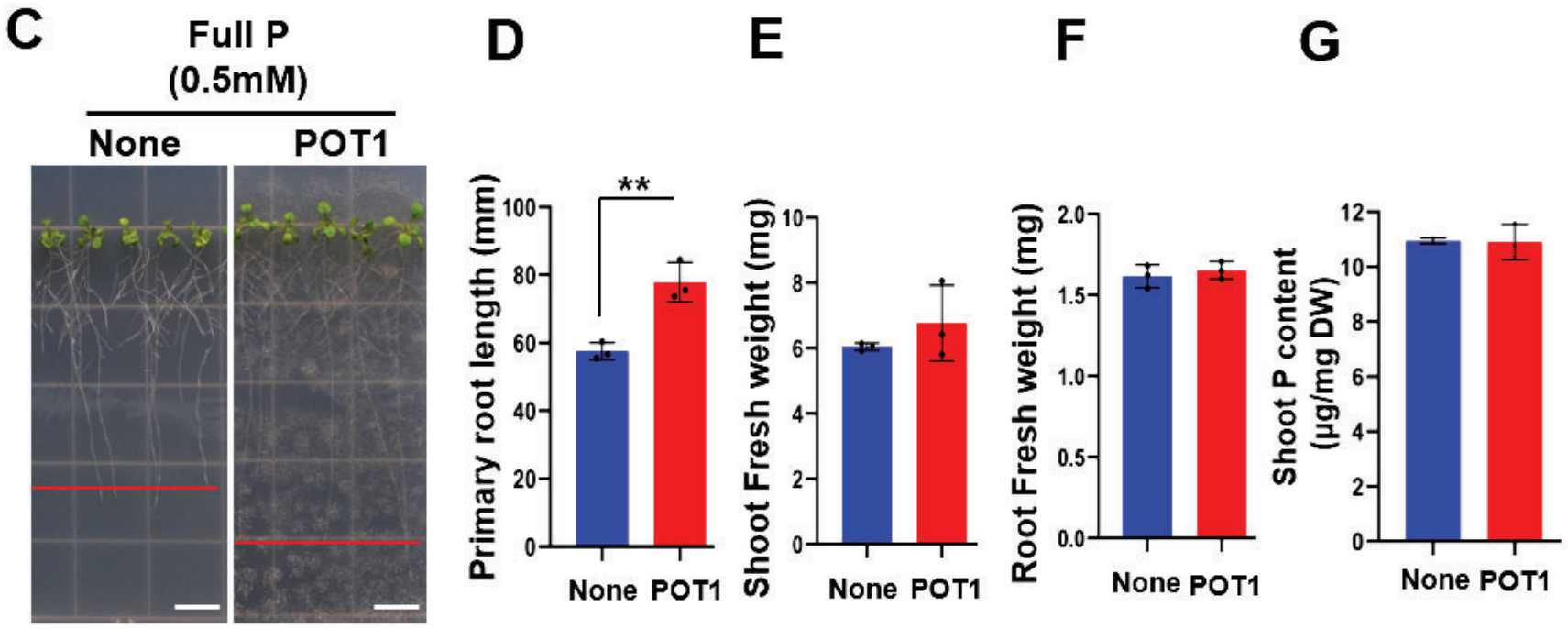

C
Full P
(0.5mM)
None
POT1
D
Primary root length (mm)
**
None POT1
E
Shoot Fresh weight (mg)
None POT1
F
Root Fresh weight (mg)
None POT1
G
Shoot P content
(µg/mg DW)
None POT1

FIG. 1 (cont'd)

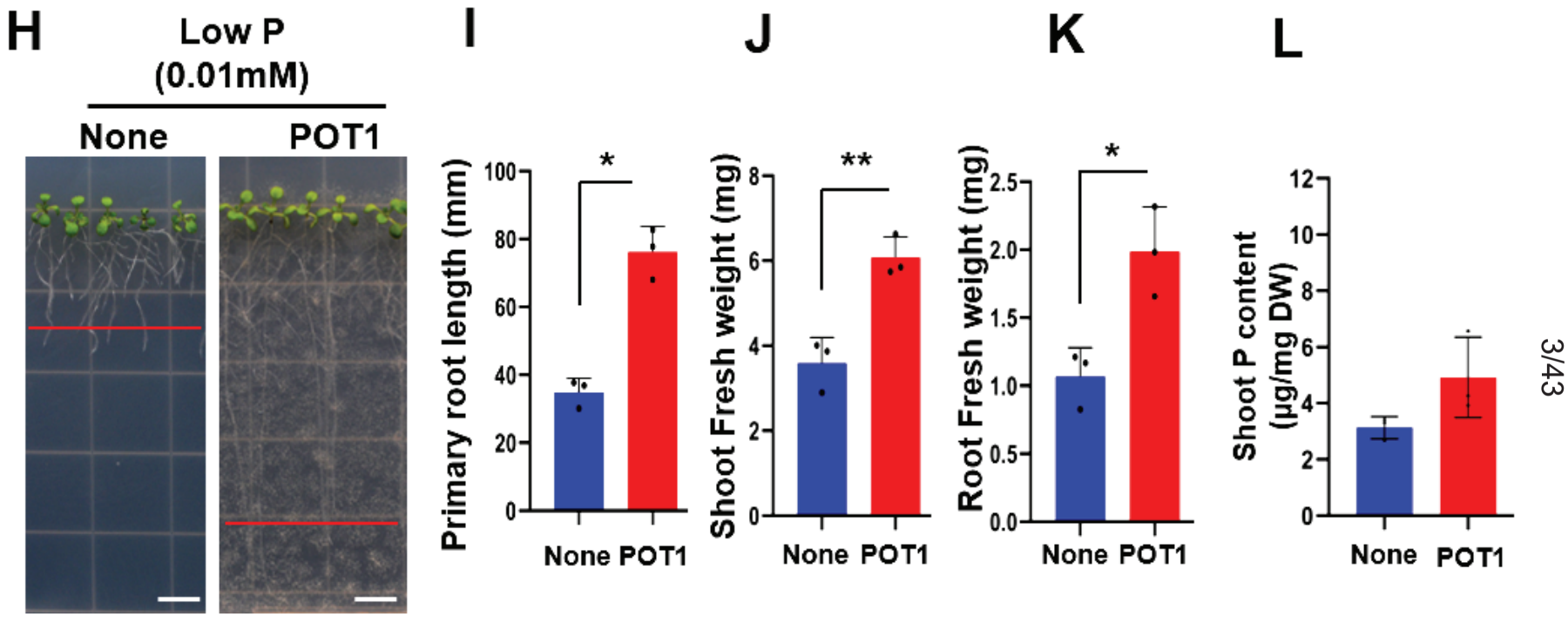

H
Low P
(0.01mM)
None
POT1
I
Primary root length (mm)
100
80
60
40
20
0
*
None POT1
J
Shoot Fresh weight (mg)
8
6
4
2
0
**
None POT1
K
Root Fresh weight (mg)
2.5
2.0
1.5
1.0
0.5
0.0
*
None POT1
L
Shoot P content
(µg/mg DW)
12
10
8
6
4
2
0
None POT1

FIG. 2

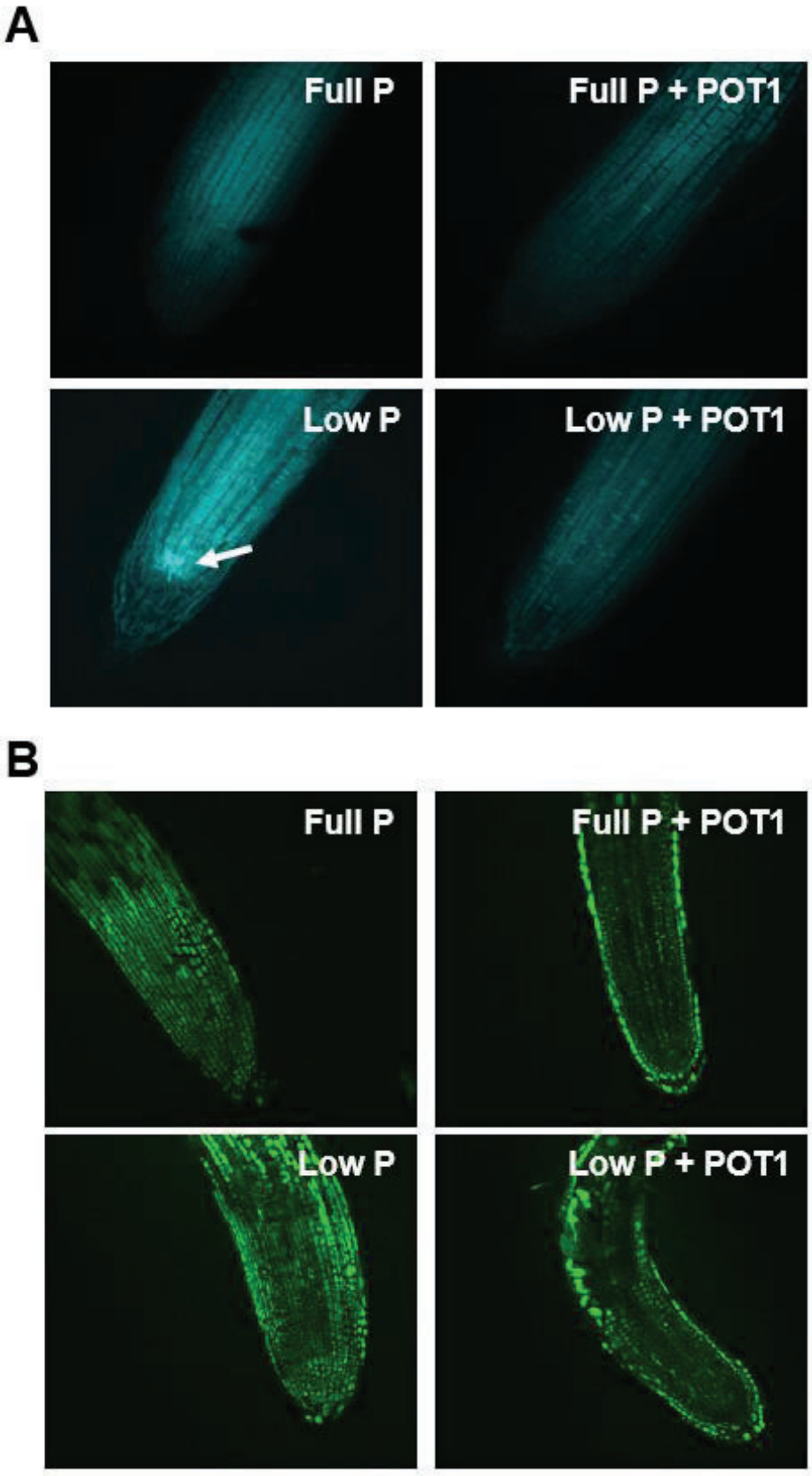

A
Full P
Full P + POT1
Low P
Low P + POT1
B
Full P
Full P + POT1
Low P
Low P + POT1

FIG. 3

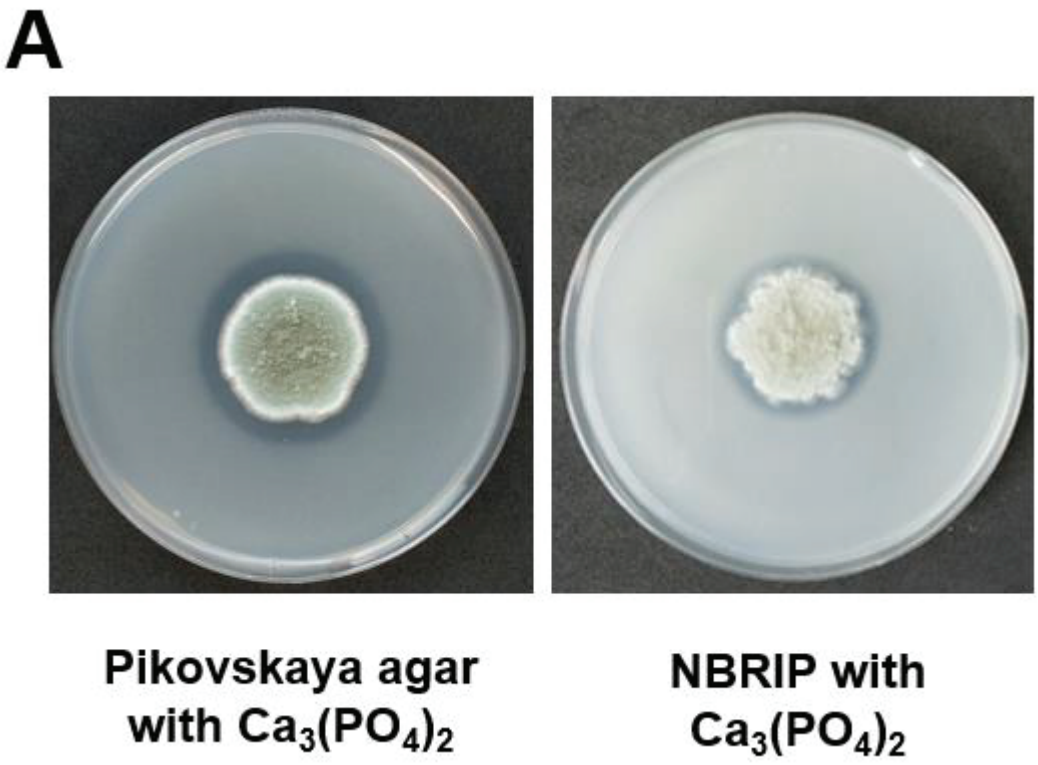
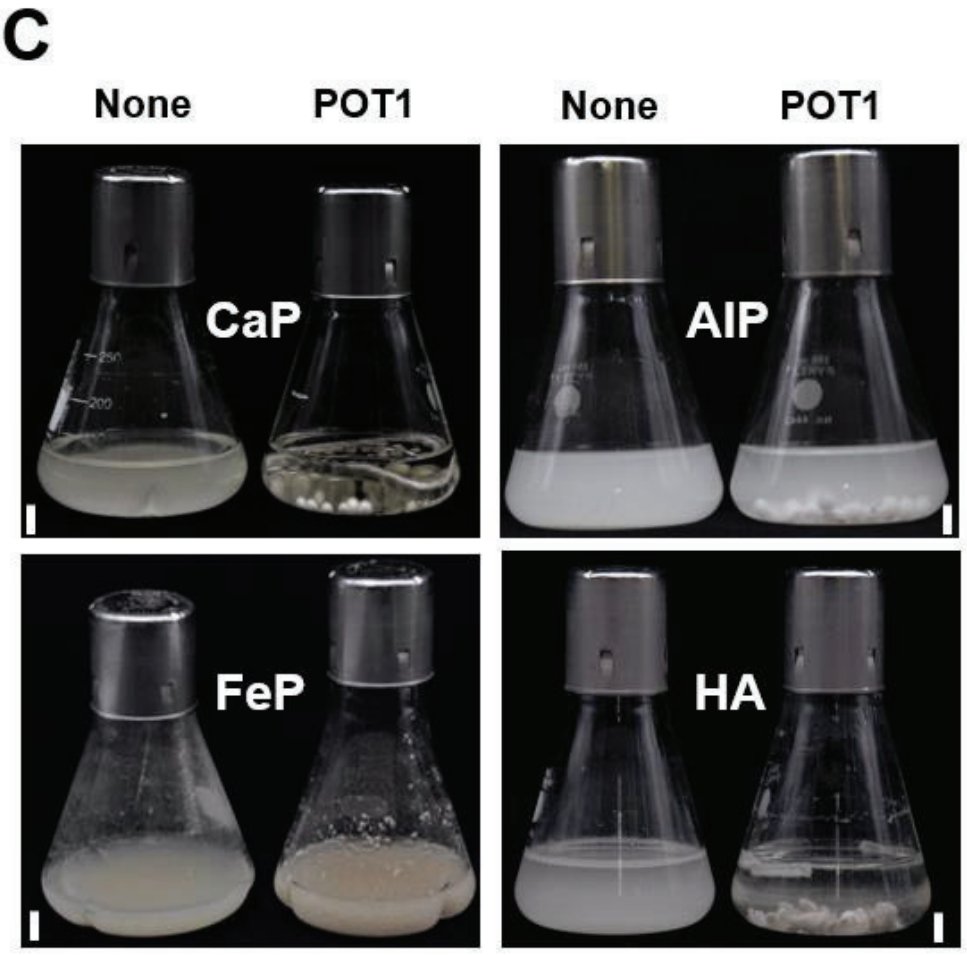

A
Pikovskaya agar with $Ca_3(PO_4)_2$
NBRIP with $Ca_3(PO_4)_2$
B
Phosphate solubility index
1.5
1.0
0.5
0.0
PVK
NBRIP

FIG. 3 (cont'd)


C
None
POT1
None
POT1
CaP
AlP
FeP
HA

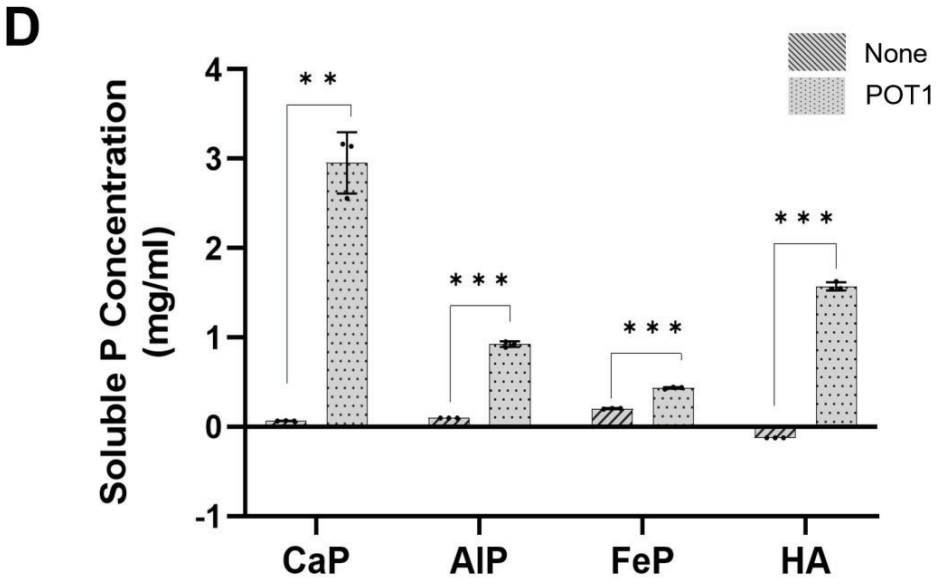

D
None
POT1
Soluble P Concentration (mg/ml)
4
3
2
1
0
-1
* *
* * *
* * *
* * *
CaP
AlP
FeP
HA

FIG. 4

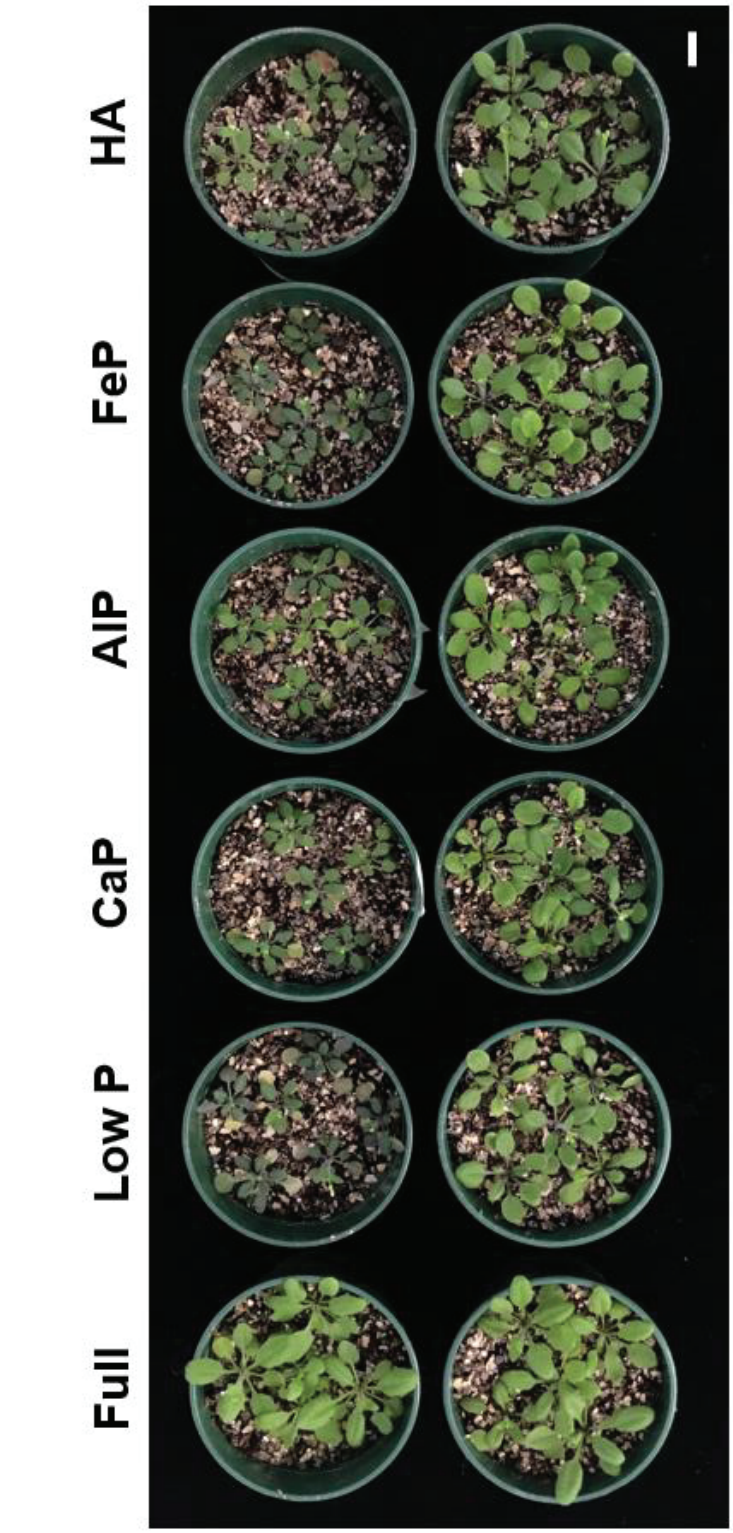


FIG. 4 (cont'd)

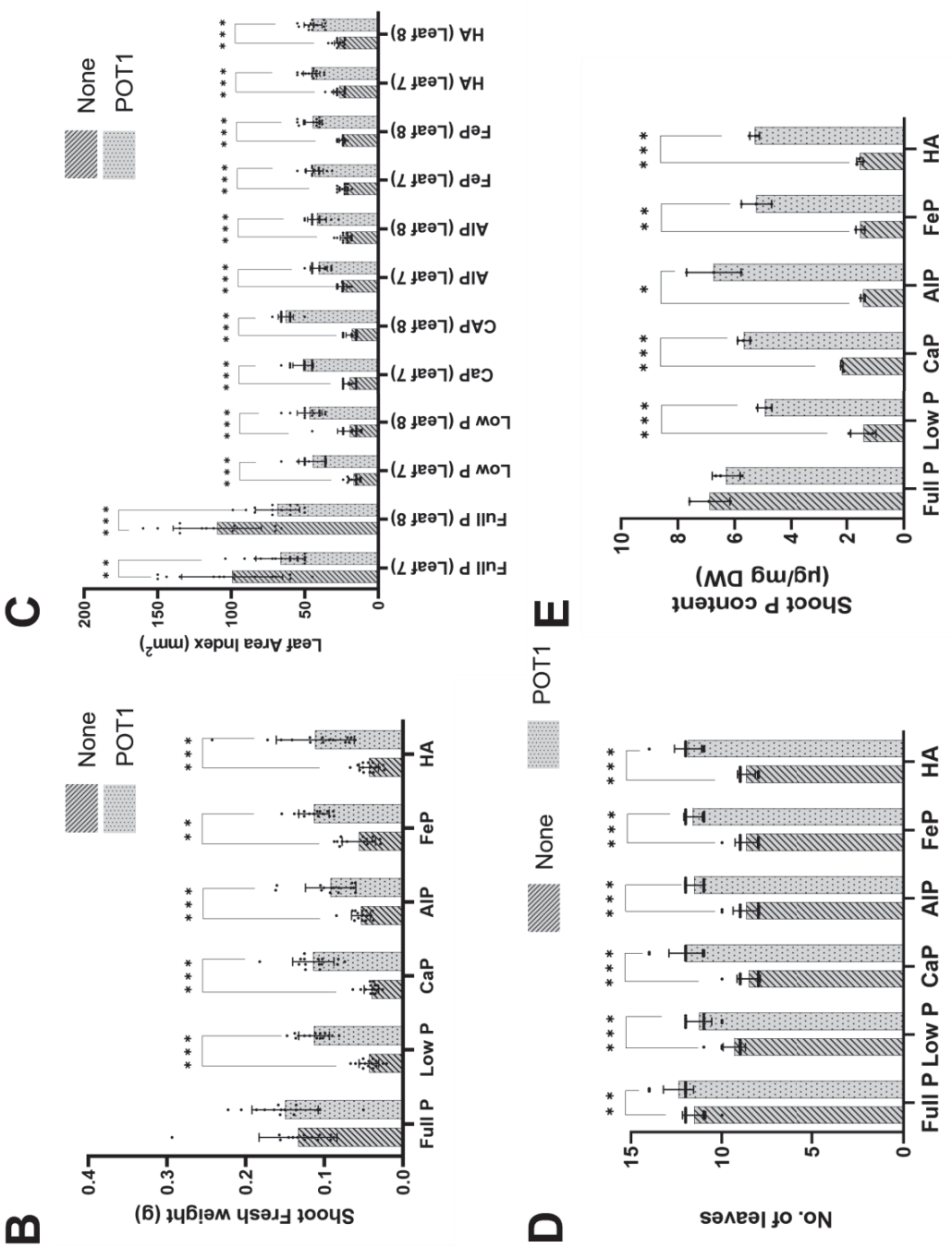

B
Shoot Fresh weight (g)
0.0
0.1
0.2
0.3
0.4
None
POT1
Full P
Low P
CaP
AlP
FeP
HA
C
Leaf Area Index (mm²)
0
50
100
150
200
Full P (Leaf 7)
Full P (Leaf 8)
Low P (Leaf 7)
Low P (Leaf 8)
CaP (Leaf 7)
CaP (Leaf 8)
AlP (Leaf 7)
AlP (Leaf 8)
FeP (Leaf 7)
FeP (Leaf 8)
HA (Leaf 7)
HA (Leaf 8)
D
No. of leaves
0
5
10
15
E
Shoot P content (µg/mg DW)
0
2
4
6
8
10

FIG. 5

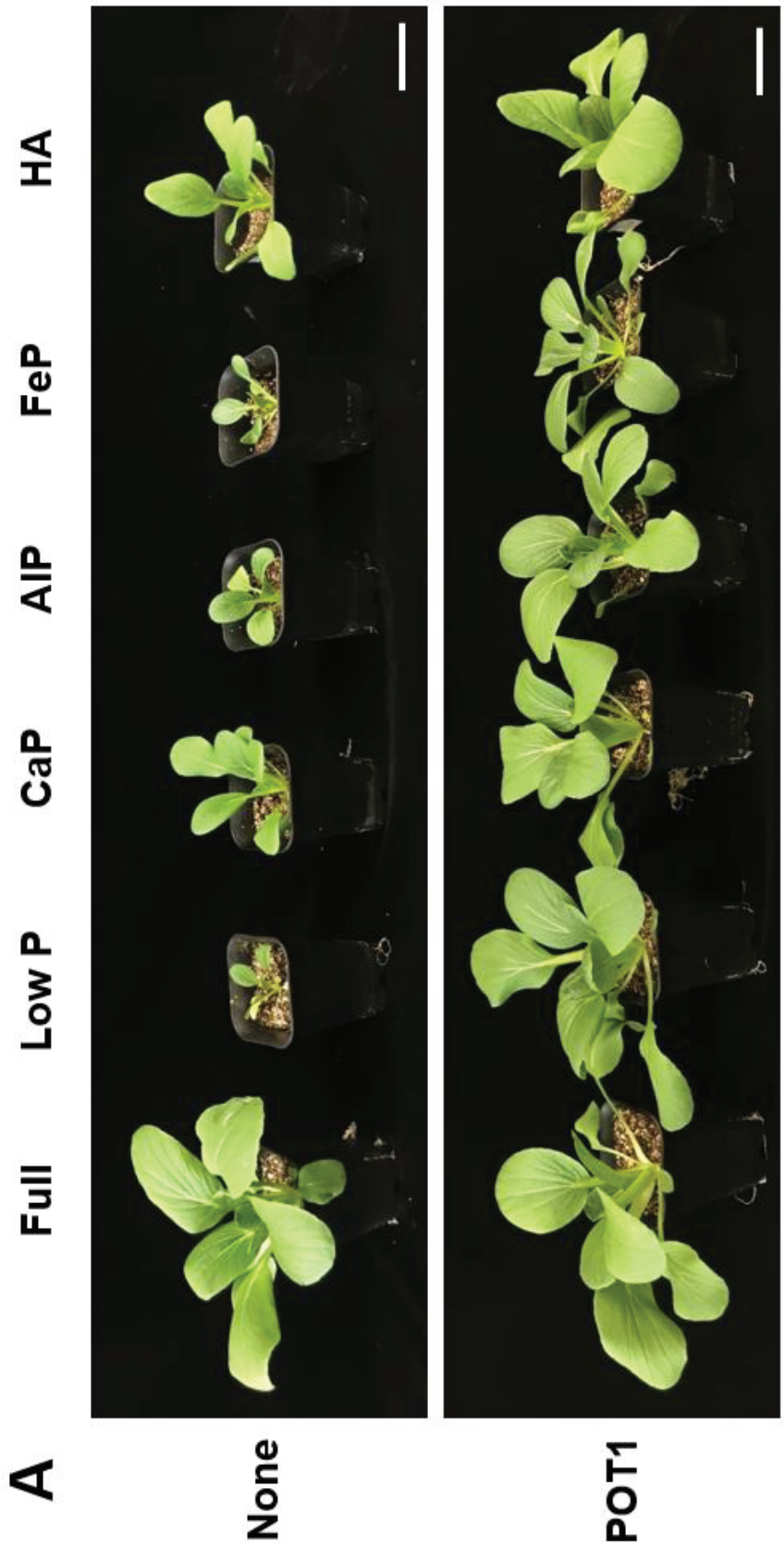


FIG. 5 (cont'd)

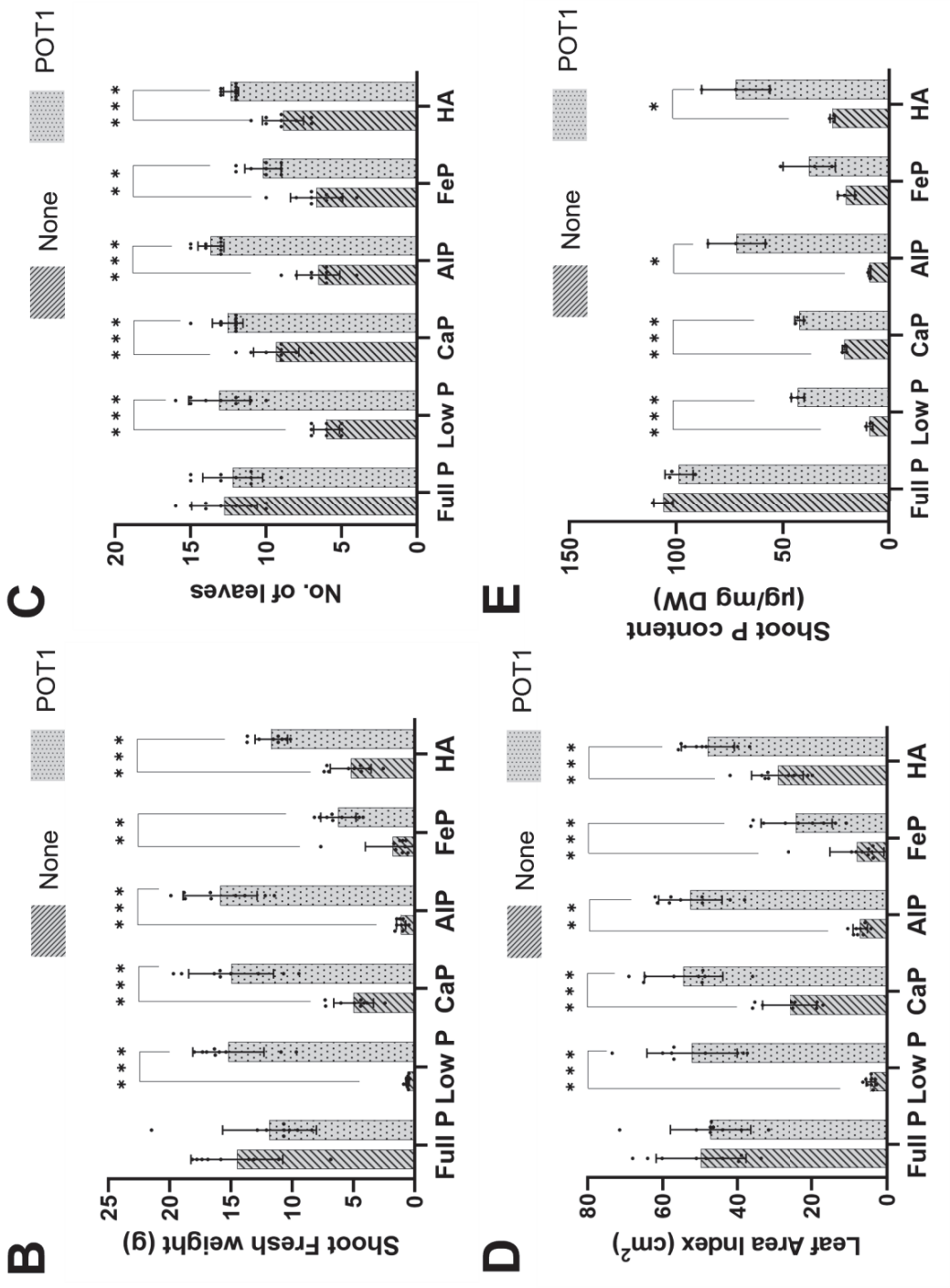

B
Shoot Fresh weight (g)
None
POT1
Full P
Low P
CaP
AlP
FeP
HA
C
No. of leaves
D
Leaf Area Index (cm²)
E
Shoot P content
(µg/mg DW)

FIG. 6

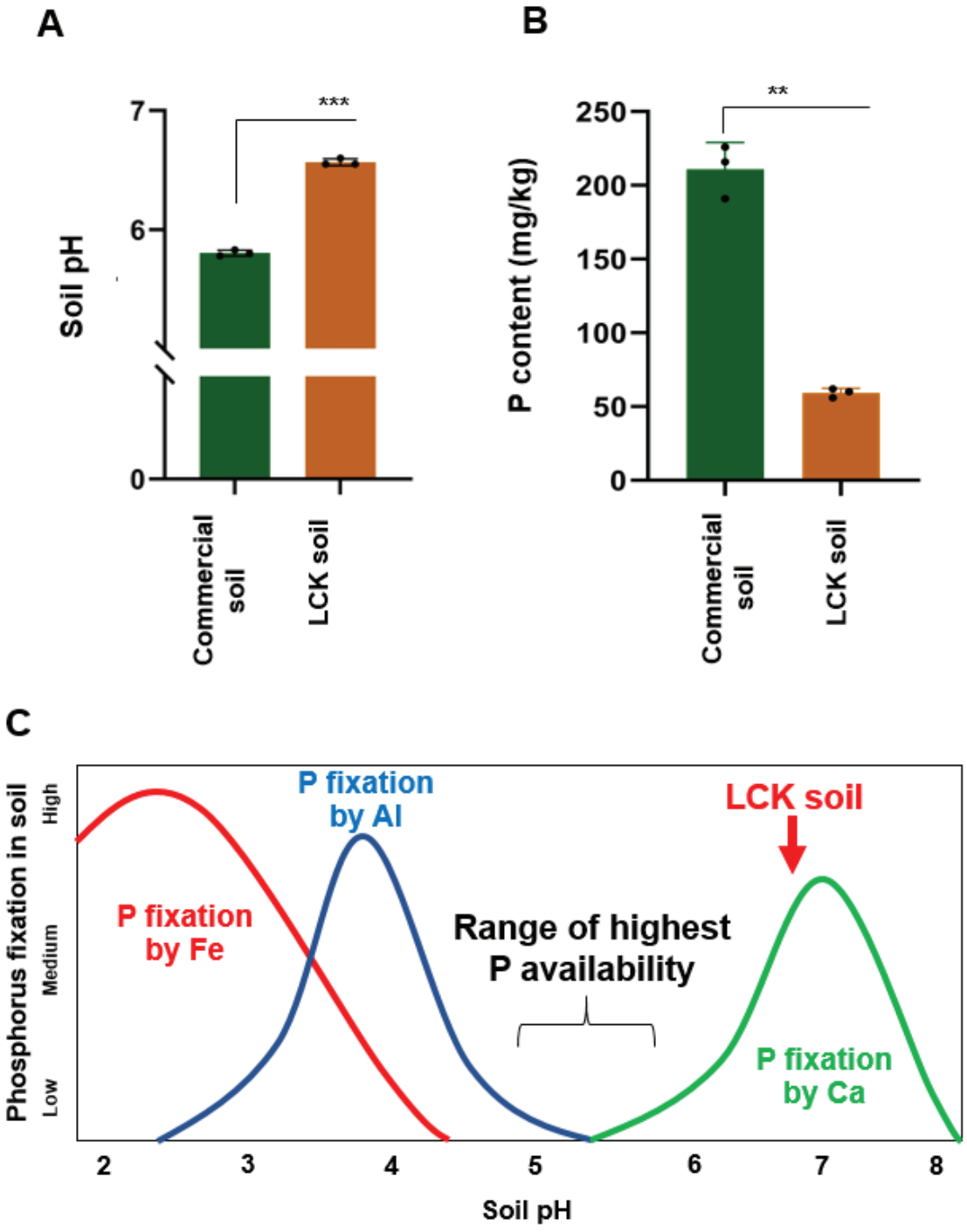
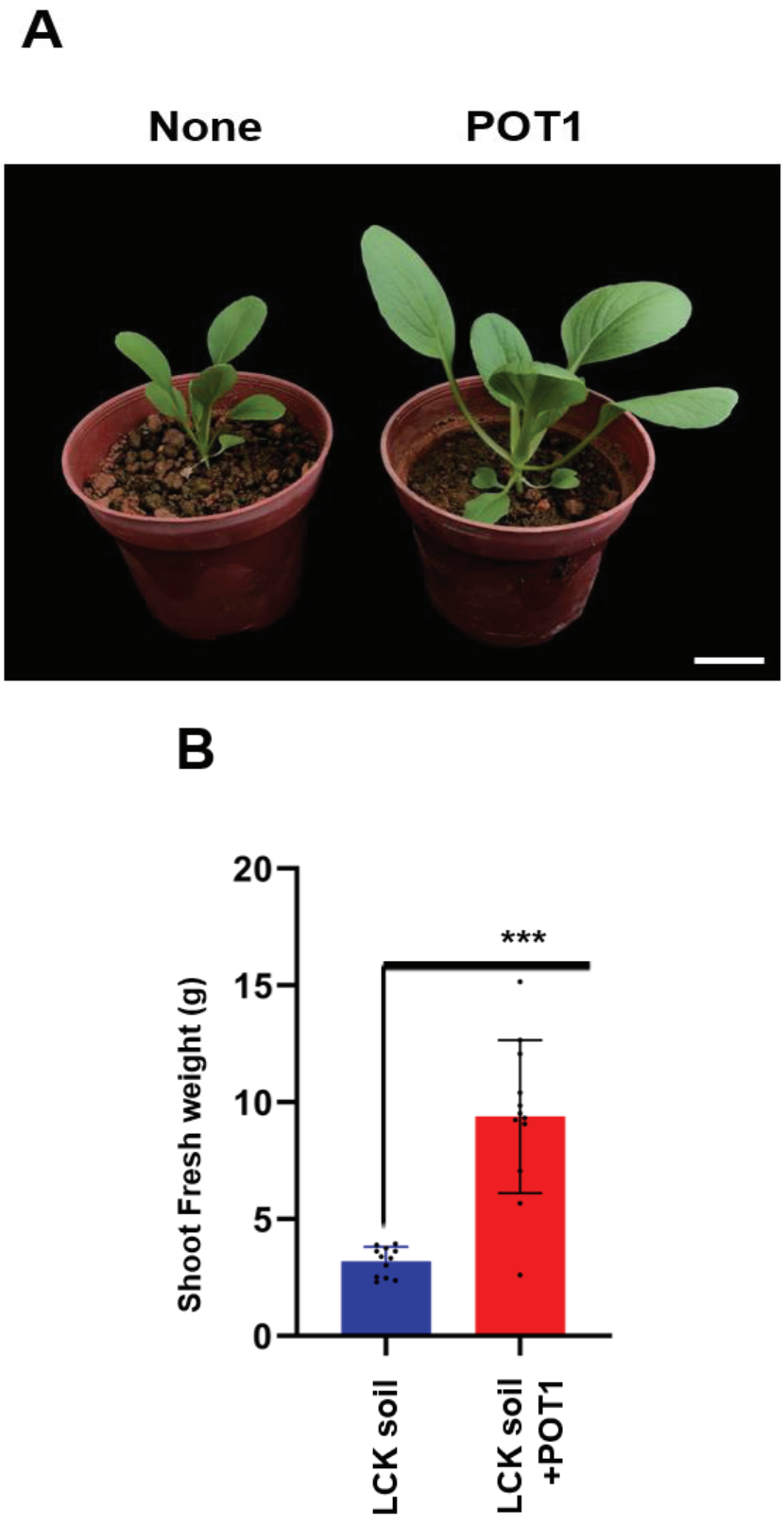

A
Soil pH
7
6
0
***
Commercial soil
LCK soil
B
P content (mg/kg)
250
200
150
100
50
0
**
Commercial soil
LCK soil
C
Phosphorus fixation in soil
High
Medium
Low
P fixation by Al
LCK soil
P fixation by Fe
Range of highest P availability
P fixation by Ca
2
3
4
5
6
7
8
Soil pH

FIG. 7


A
None
POT1
B
Shoot Fresh weight (g)
20
15
10
5
0
***
LCK soil
LCK soil +POT1

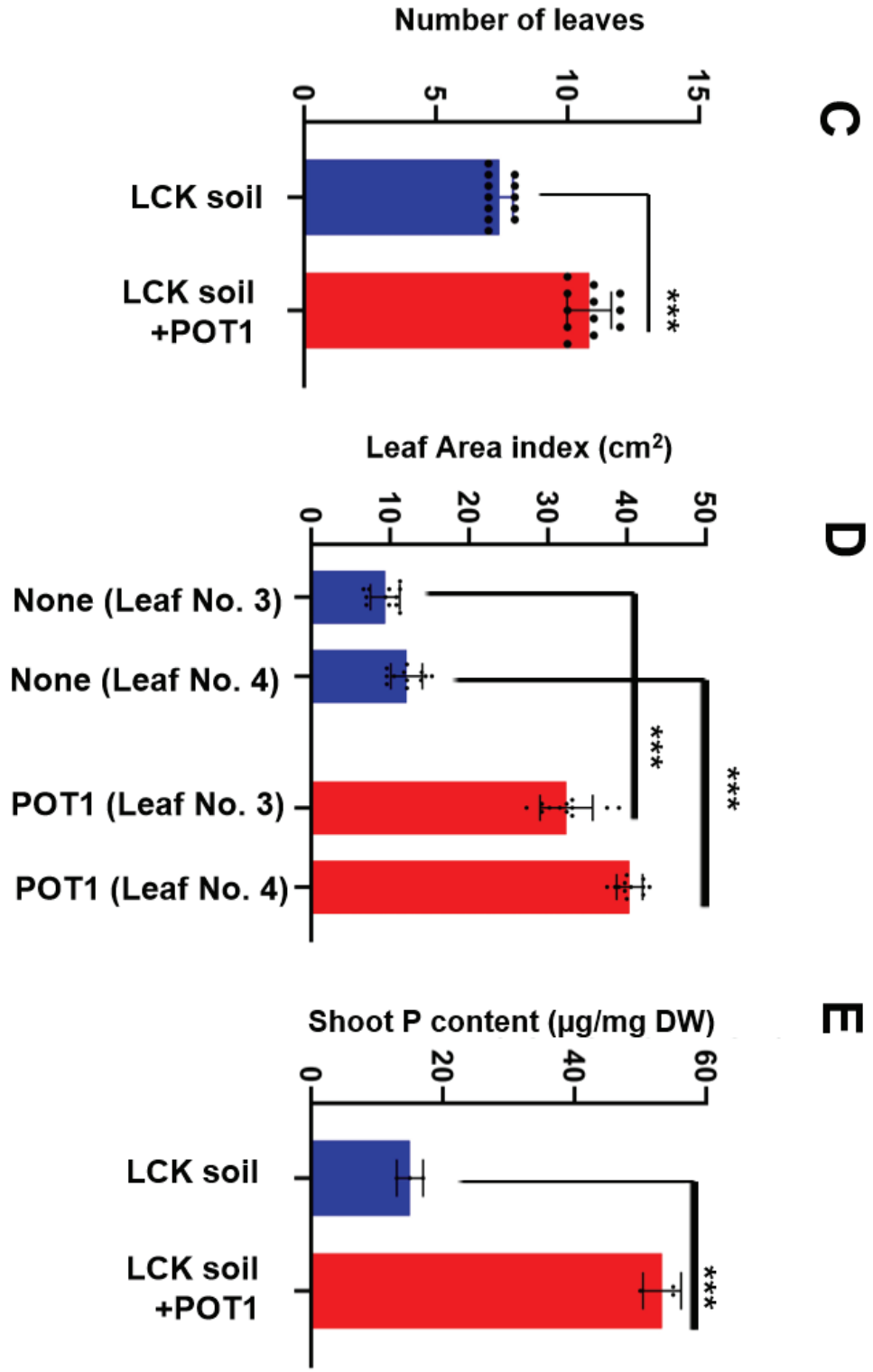
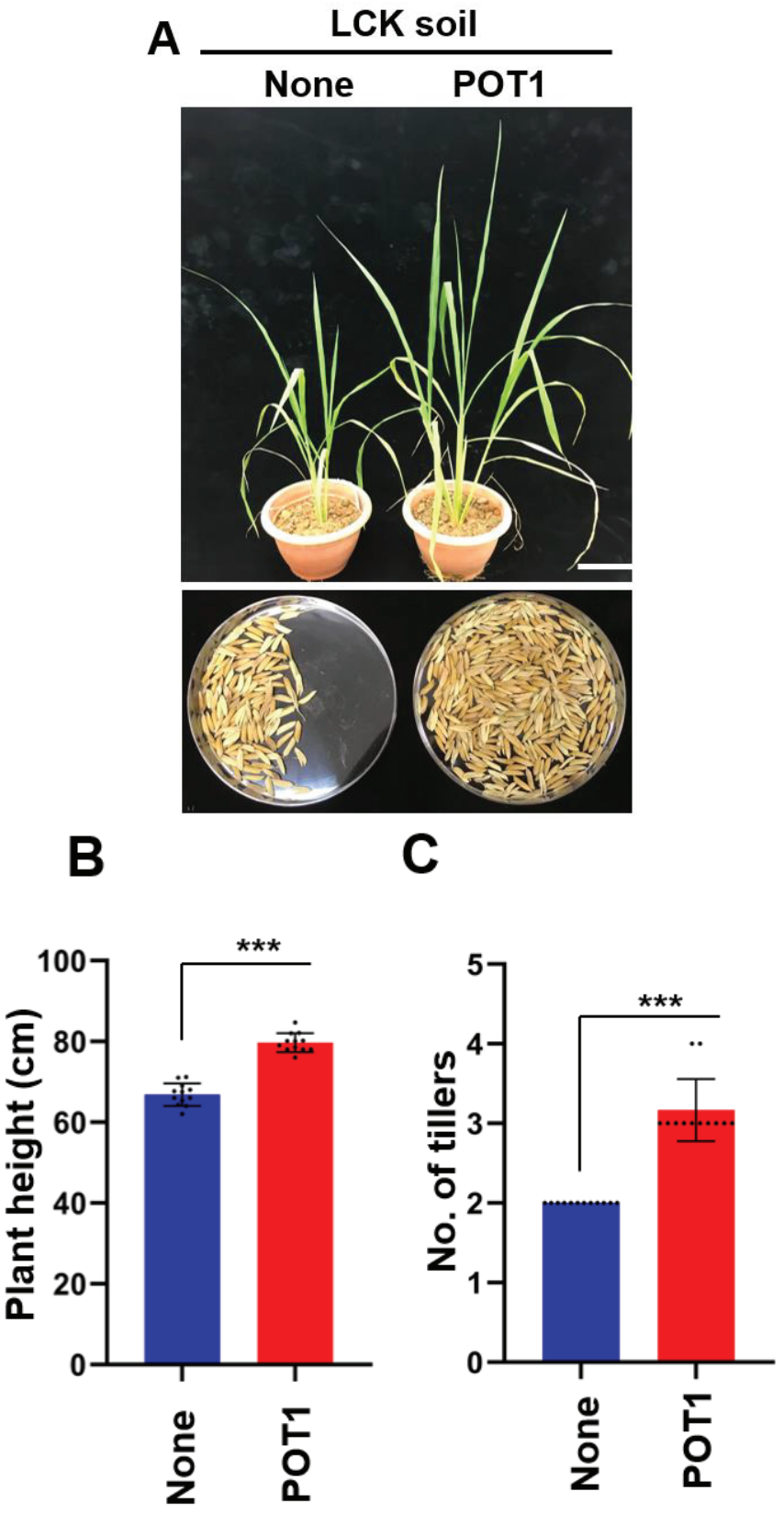

C
Number of leaves
0
5
10
15
LCK soil
LCK soil
+POT1
***
D
Leaf Area index (cm²)
0
10
20
30
40
50
None (Leaf No. 3)
None (Leaf No. 4)
POT1 (Leaf No. 3)
POT1 (Leaf No. 4)
***
***
E
Shoot P content (μg/mg DW)
0
20
40
60
LCK soil
LCK soil
+POT1
***

FIG. 7 (cont'd)

FIG. 8


A
LCK soil
None
POT1
B
C
***
Plant height (cm)
100
80
60
40
20
0
None
POT1
***
No. of tillers
5
4
3
2
1
0
None
POT1

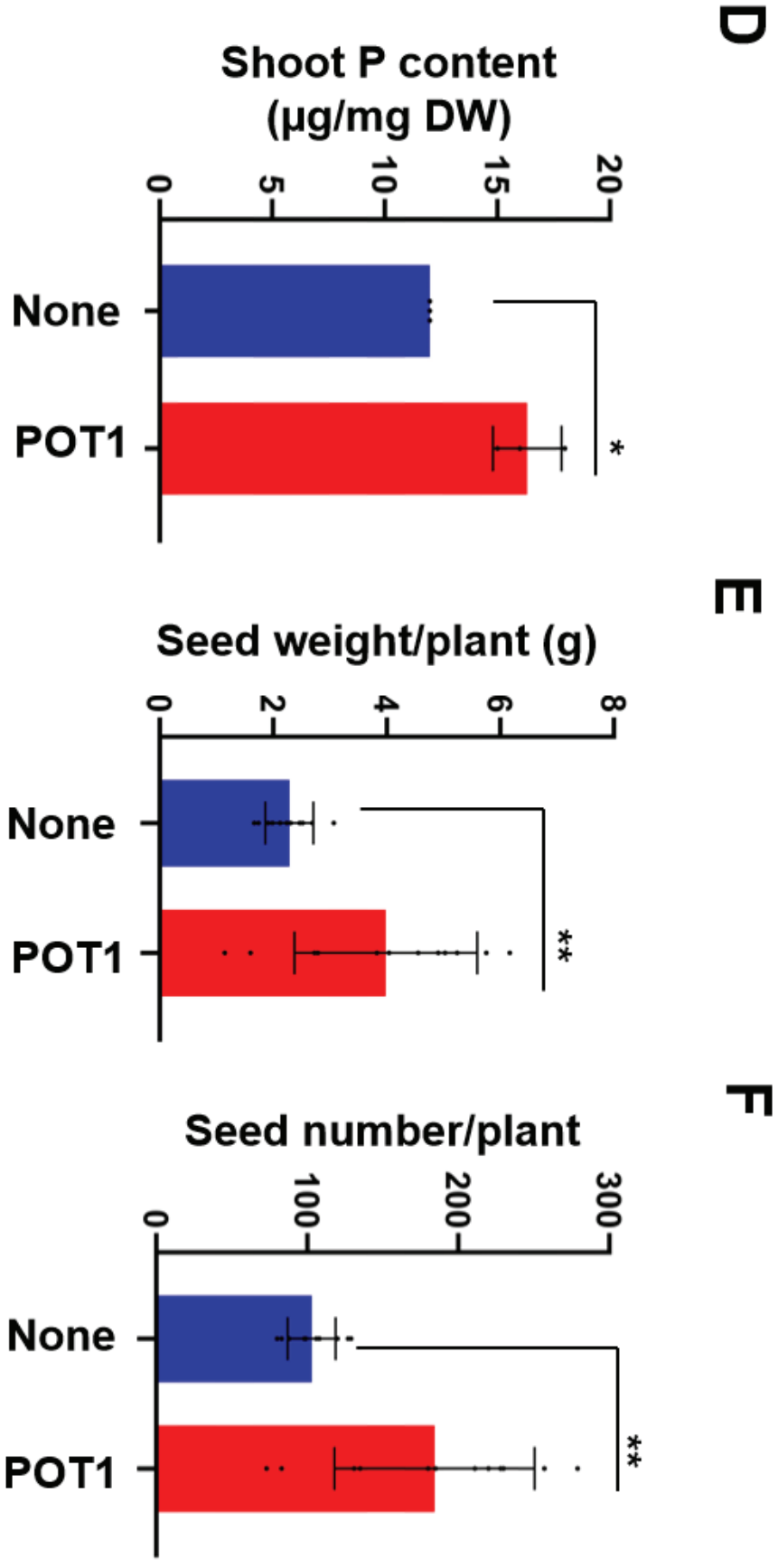
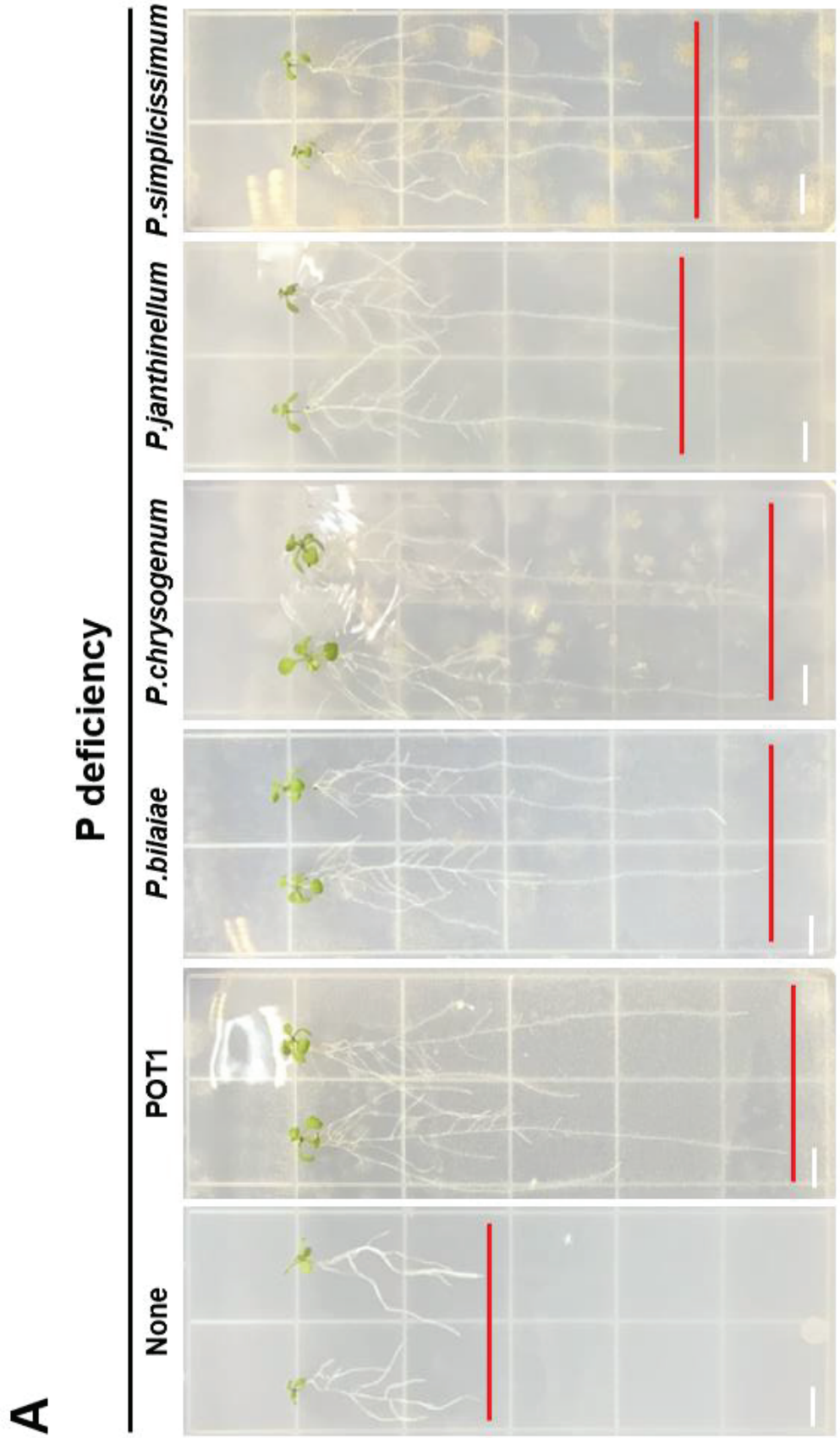

D
Shoot P content
(µg/mg DW)
0
5
10
15
20
None
POT1
*
E
Seed weight/plant (g)
0
2
4
6
8
None
POT1
**
F
Seed number/plant
0
100
200
300
None
POT1
**

FIG. 8 (cont'd)

FIG. 9


A
P deficiency
None
POT1
P.bilaiae
P.chrysogenum
P.janthinellum
P.simplicissimum

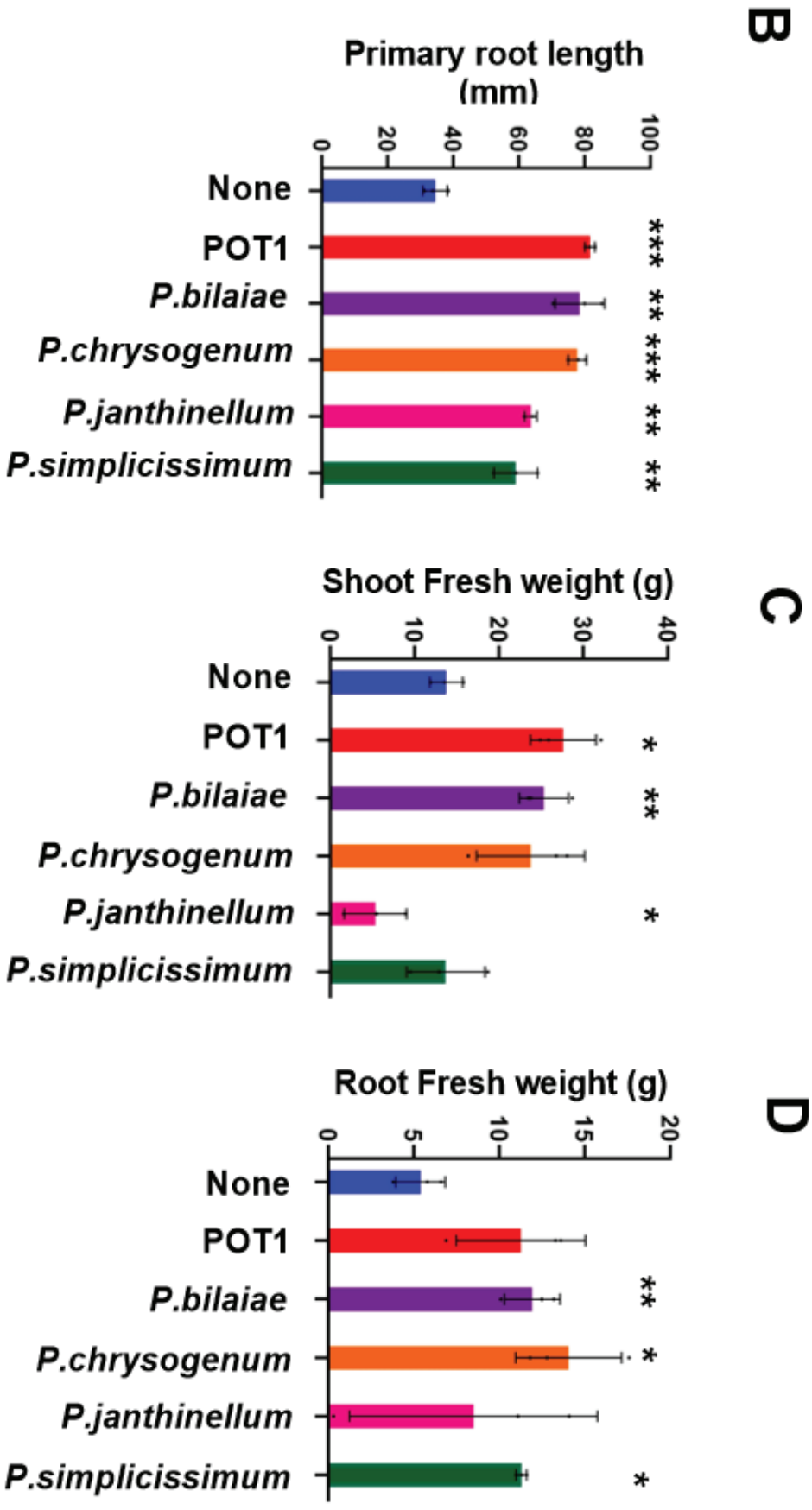
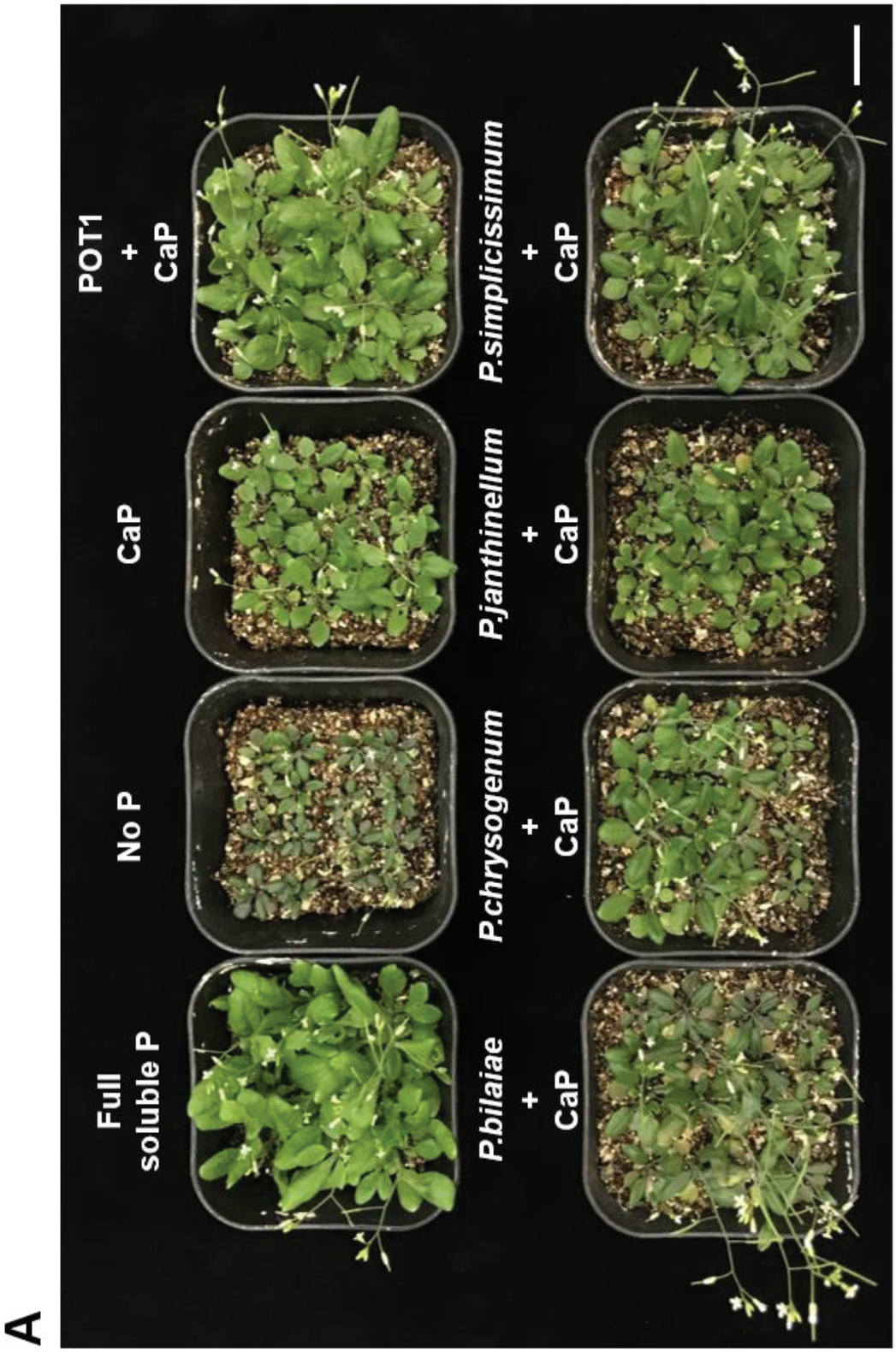

B
Primary root length (mm)
0
20
40
60
80
100
None
POT1
P.bilaiae
P.chrysogenum
P.janthinellum
P.simplicissimum
***
**
***
**
**
C
Shoot Fresh weight (g)
0
10
20
30
40
None
POT1
P.bilaiae
P.chrysogenum
P.janthinellum
P.simplicissimum
*
**
*
D
Root Fresh weight (g)
0
5
10
15
20
None
POT1
P.bilaiae
P.chrysogenum
P.janthinellum
P.simplicissimum
**
*
*

FIG. 9 (cont'd)

FIG. 10


A
Full soluble P
No P
CaP
POT1 + CaP
P.bilaiae + CaP
P.chrysogenum + CaP
P.janthinellum + CaP
P.simplicissimum + CaP

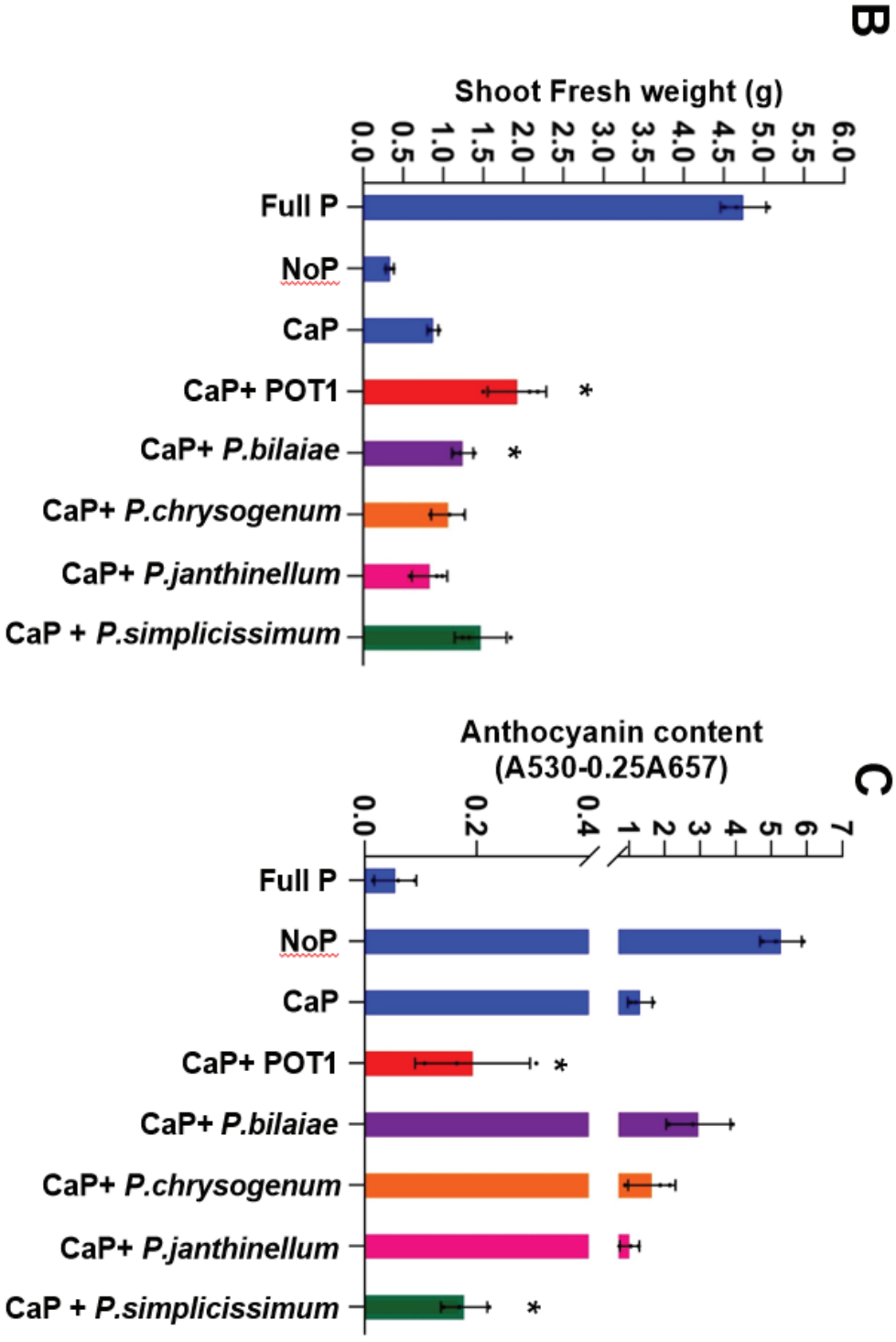

B
Shoot Fresh weight (g)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
Full P
NoP
CaP
CaP+ POT1
CaP+ P.bilaiae
CaP+ P.chrysogenum
CaP+ P.janthinellum
CaP + P.simplicissimum
*
*
C
Anthocyanin content
(A530-0.25A657)
0.0
0.2
0.4
1
2
3
4
5
6
7
Full P
NoP
CaP
CaP+ POT1
CaP+ P.bilaiae
CaP+ P.chrysogenum
CaP+ P.janthinellum
CaP + P.simplicissimum
*
*

FIG. 10 (cont'd)

FIG. 11

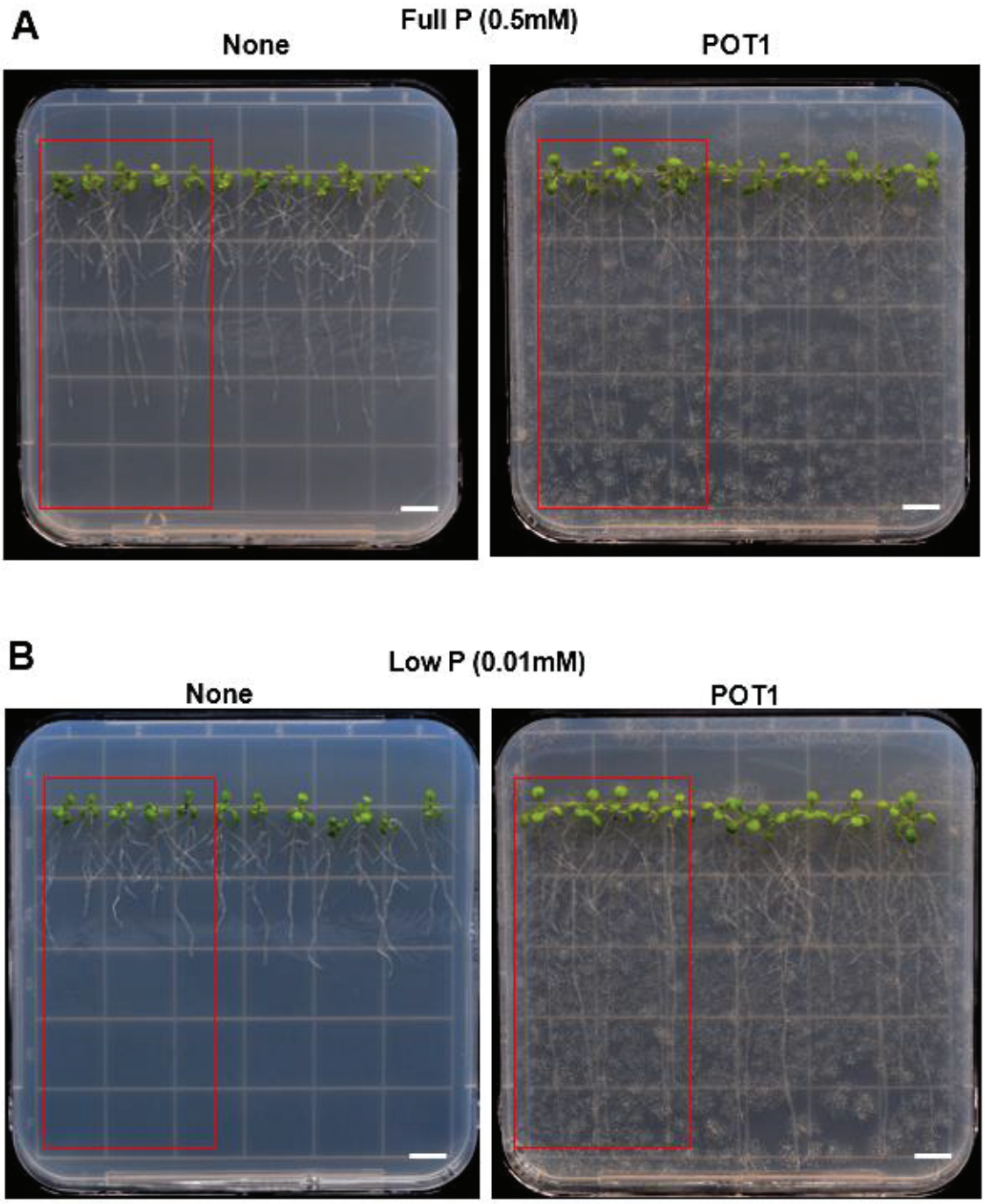


FIG. 12

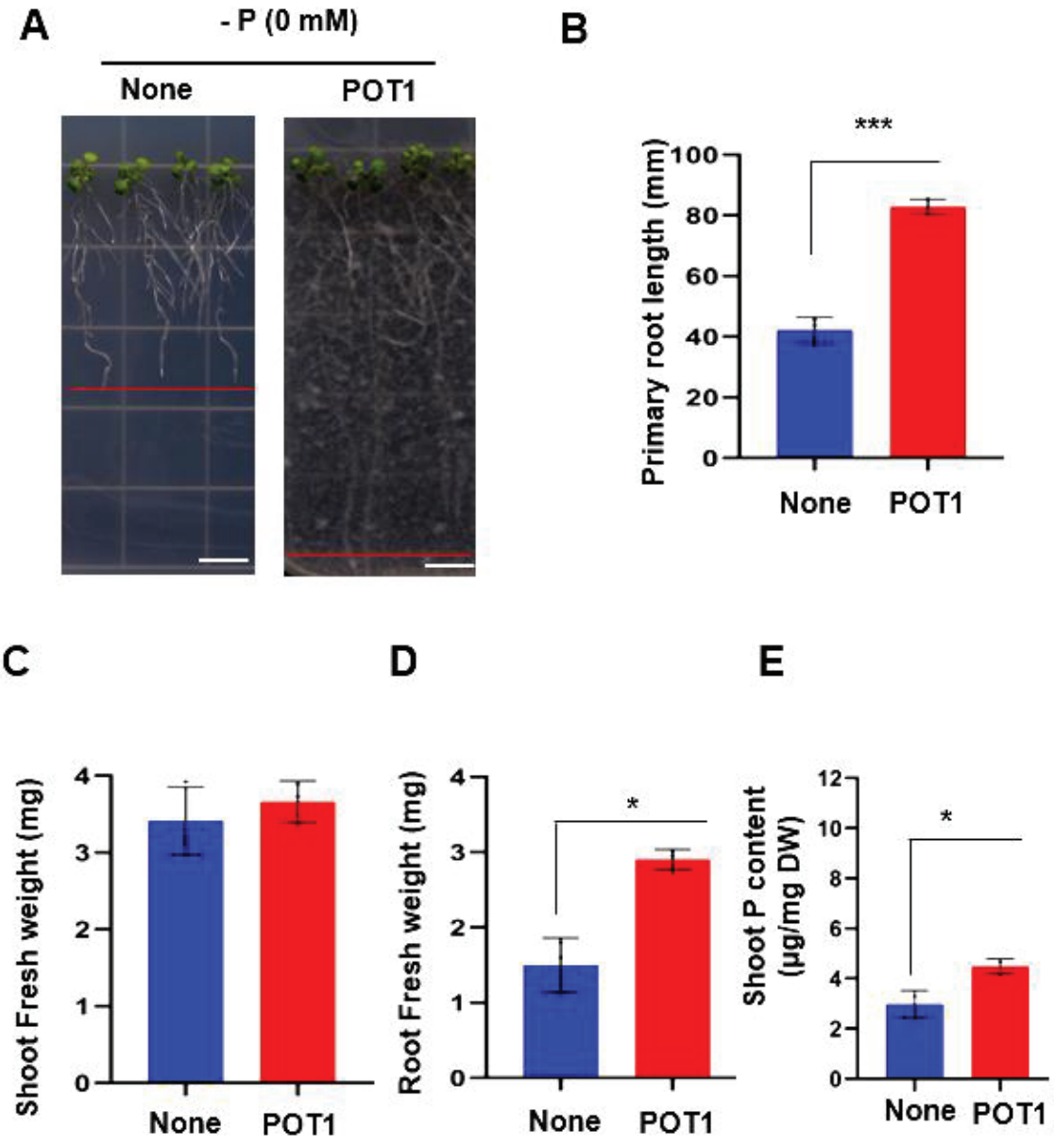

A
- P (0 mM)
None
POT1
B
***
Primary root length (mm)
100
80
60
40
20
0
None
POT1
C
Shoot Fresh weight (mg)
4
3
2
1
0
None
POT1
D
*
Root Fresh weight (mg)
4
3
2
1
0
None
POT1
E
*
Shoot P content (µg/mg DW)
12
10
8
6
4
2
0
None
POT1

FIG. 13

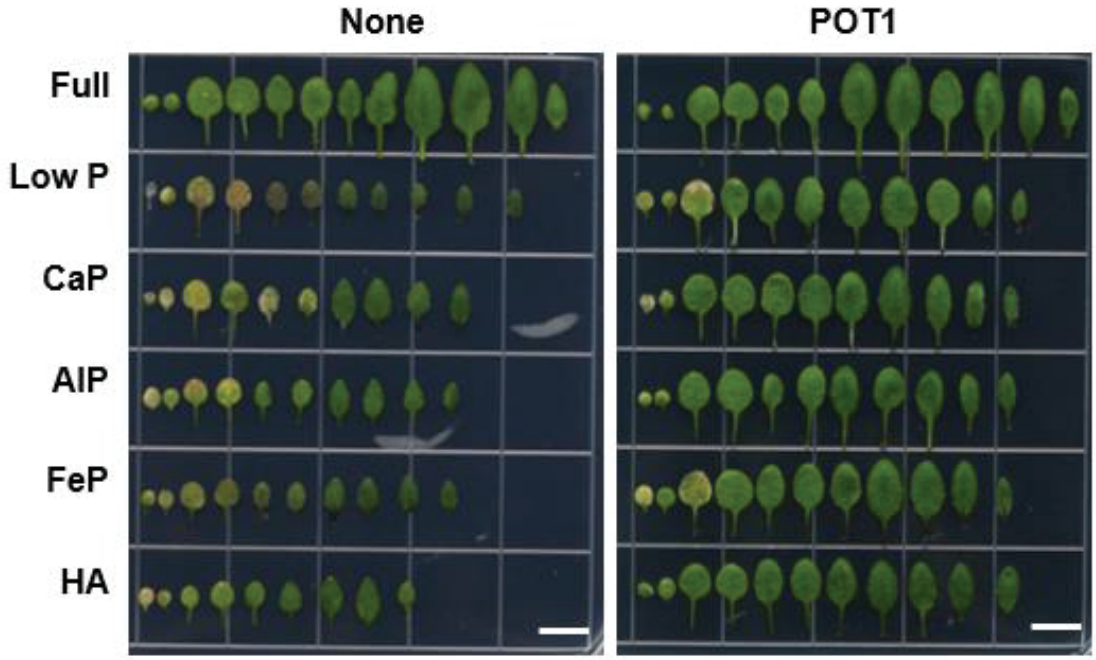


FIG. 14

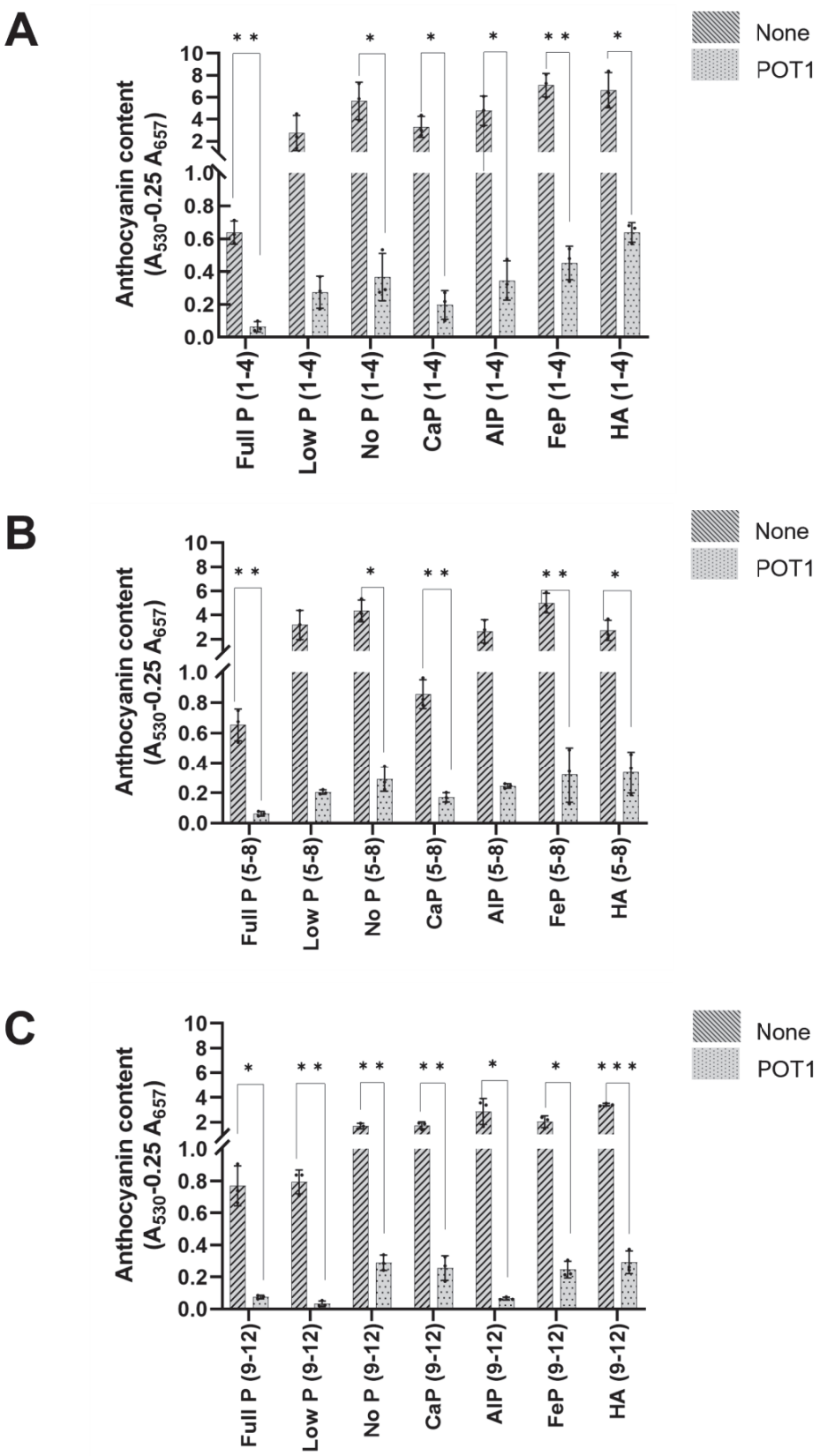

A
B
C
None
POT1
Anthocyanin content
(A530-0.25 A657)
Full P (1-4)
Low P (1-4)
No P (1-4)
CaP (1-4)
AlP (1-4)
FeP (1-4)
HA (1-4)
Full P (5-8)
Low P (5-8)
No P (5-8)
CaP (5-8)
AlP (5-8)
FeP (5-8)
HA (5-8)
Full P (9-12)
Low P (9-12)
No P (9-12)
CaP (9-12)
AlP (9-12)
FeP (9-12)
HA (9-12)

FIG. 15

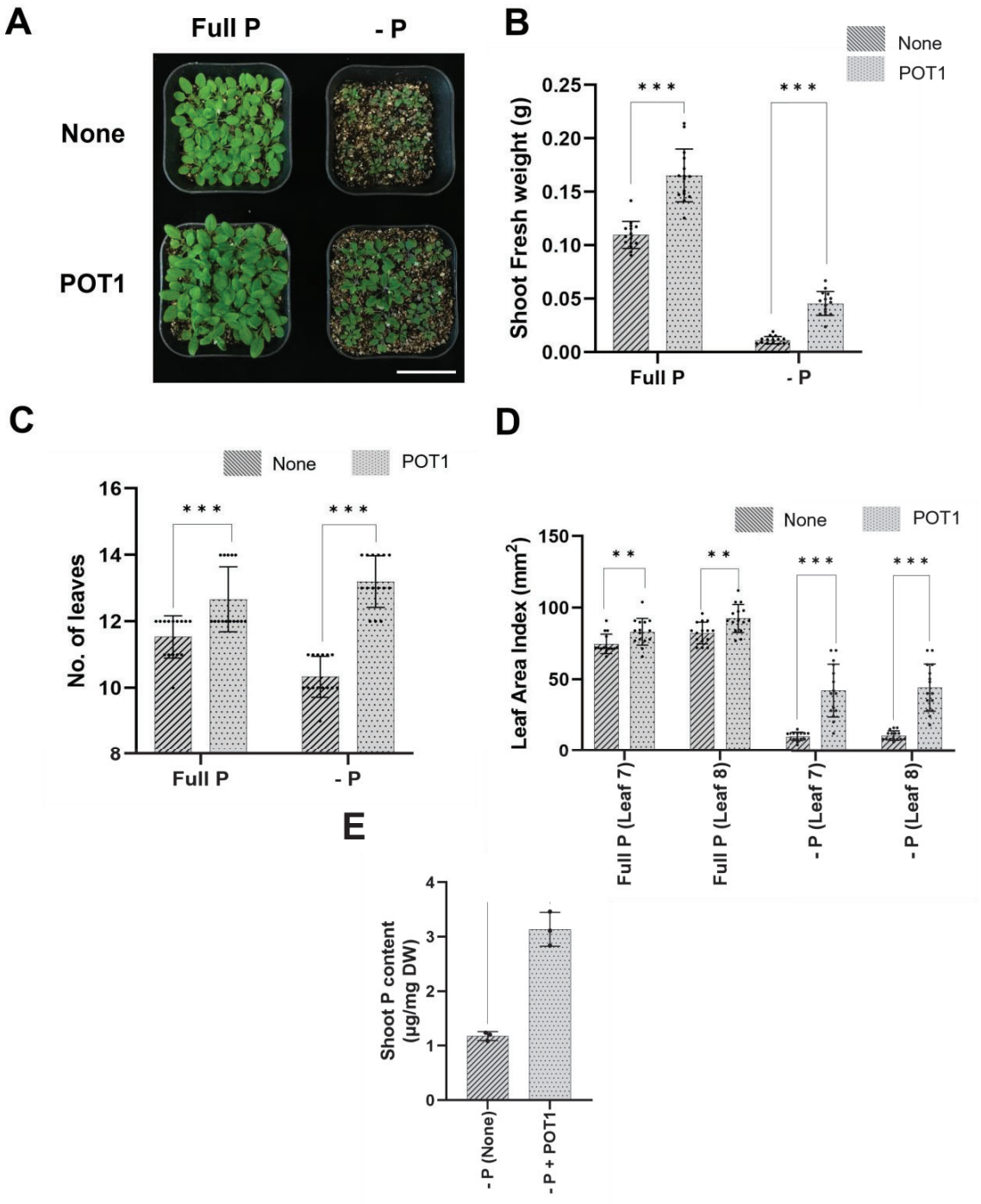

A
Full P
- P
None
POT1
B
None
POT1
Shoot Fresh weight (g)
0.25
0.20
0.15
0.10
0.05
0.00
***
***
Full P
- P
C
None
POT1
No. of leaves
16
14
12
10
8
***
***
Full P
- P
D
None
POT1
Leaf Area Index (mm2)
150
100
50
0
**
**
***
***
Full P (Leaf 7)
Full P (Leaf 8)
- P (Leaf 7)
- P (Leaf 8)
E
Shoot P content (µg/mg DW)
4
3
2
1
0
- P (None)
- P + POT1

FIG. 16

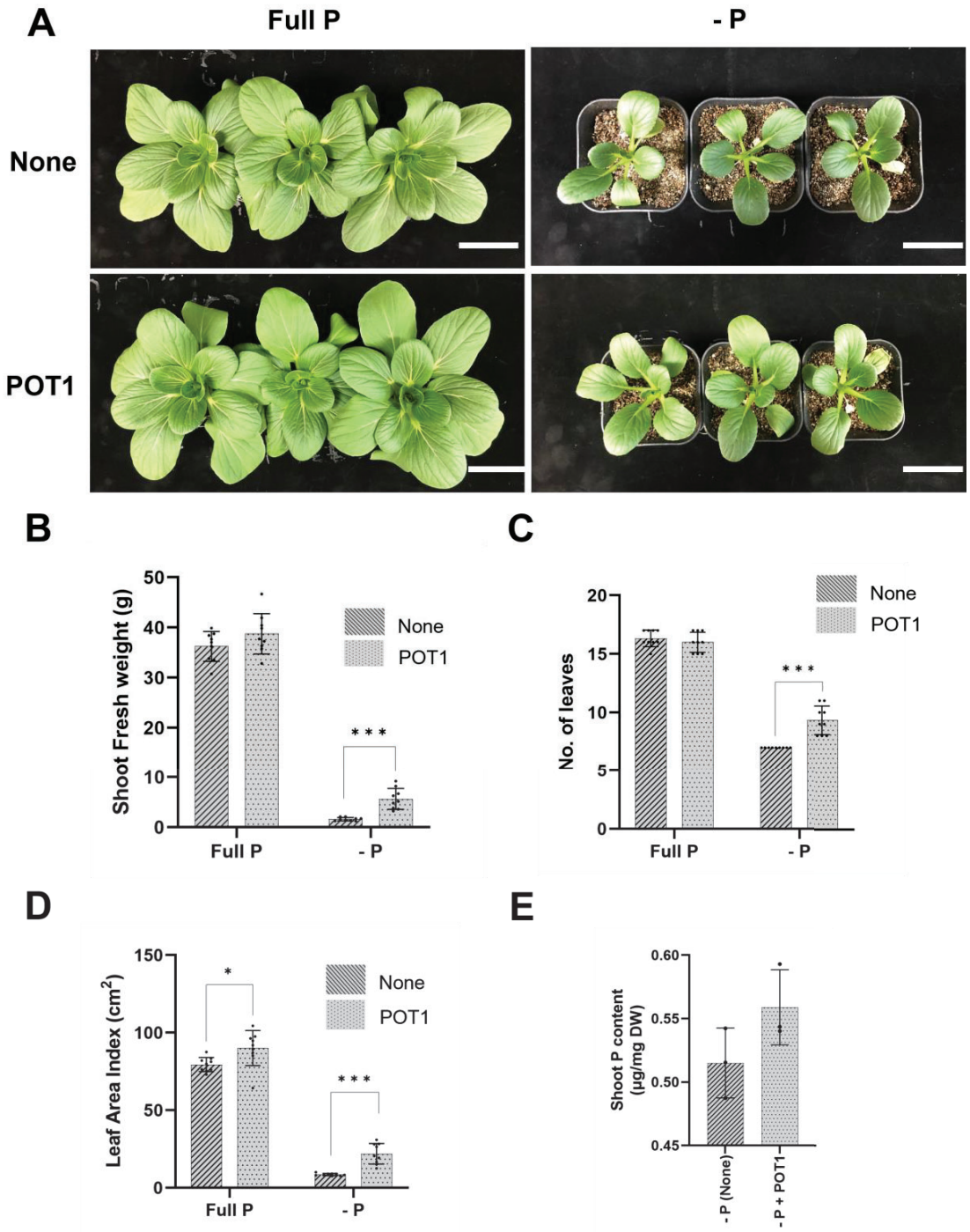

A
Full P
- P
None
POT1
B
Shoot Fresh weight (g)
50
40
30
20
10
0
None
POT1
***
Full P
- P
C
No. of leaves
20
15
10
5
0
None
POT1
***
Full P
- P
D
Leaf Area Index (cm²)
150
100
50
0
*
None
POT1
***
Full P
- P
E
Shoot P content (µg/mg DW)
0.60
0.55
0.50
0.45
- P (None)
- P + POT1

FIG. 17

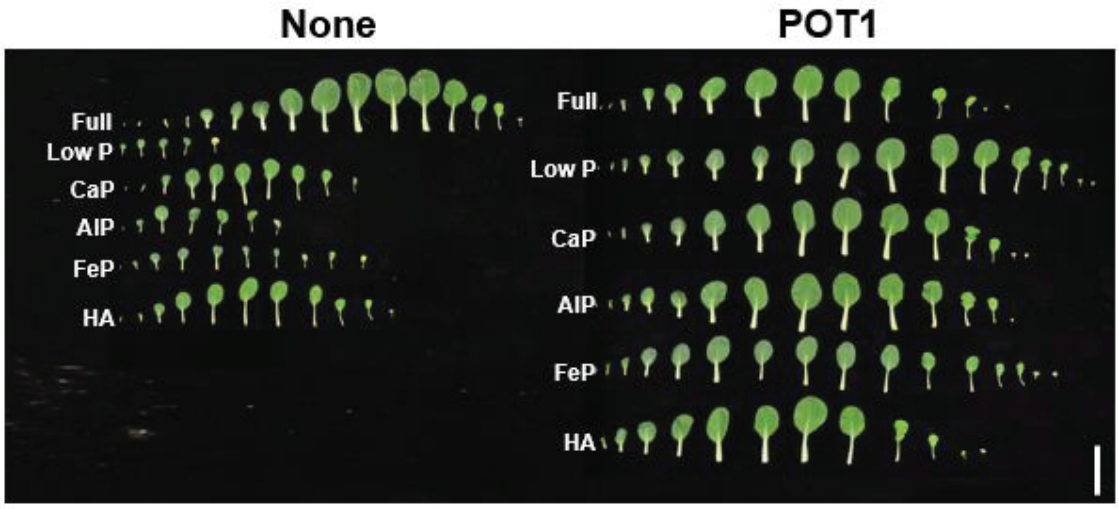


FIG. 18

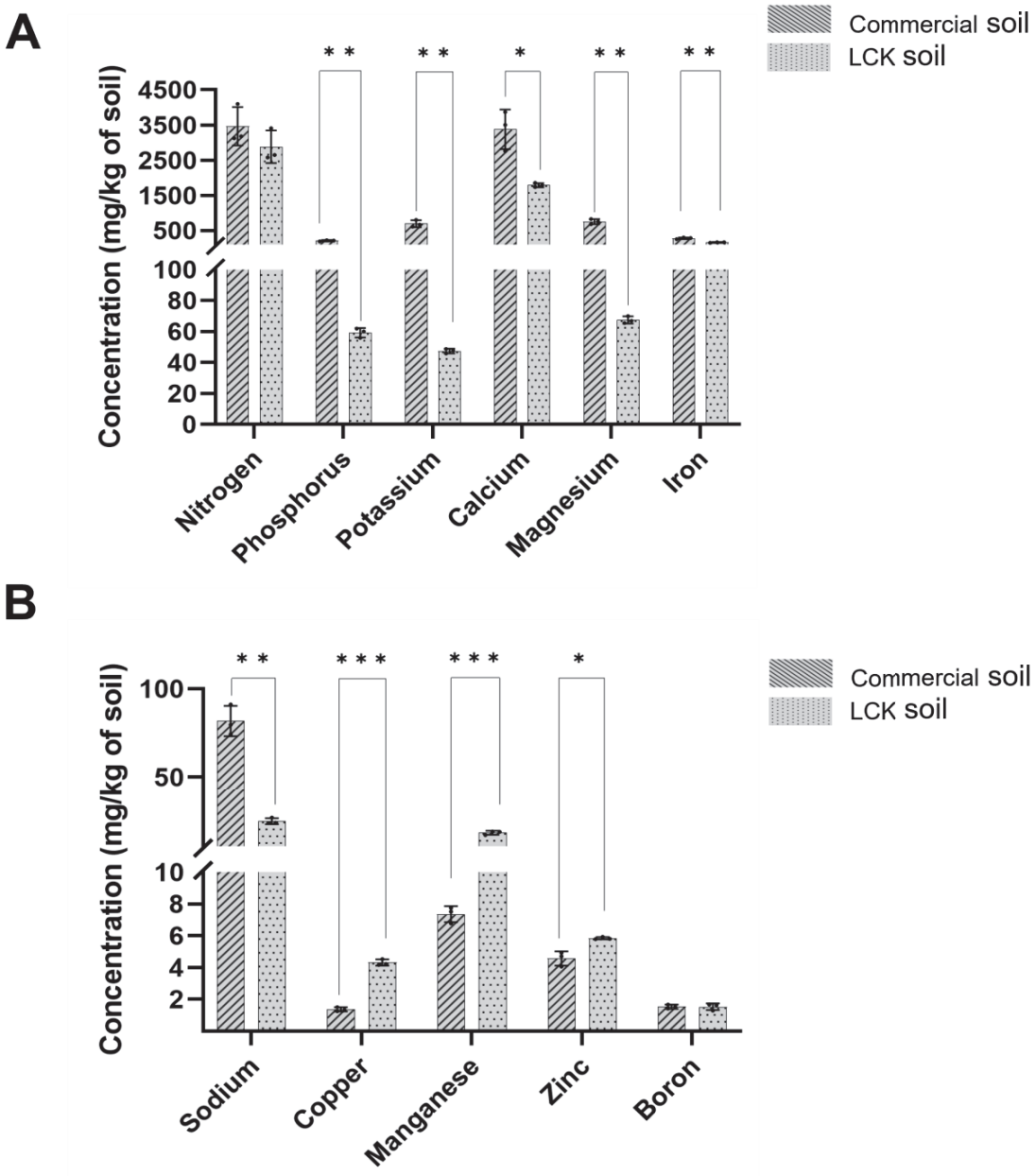

A
Commercial soil
LCK soil
Concentration (mg/kg of soil)
4500
3500
2500
1500
500
100
80
60
40
20
0
* *
* *
*
* *
* *
Nitrogen
Phosphorus
Potassium
Calcium
Magnesium
Iron
B
Commercial soil
LCK soil
Concentration (mg/kg of soil)
100
50
10
8
6
4
2
* *
* * *
* * *
*
Sodium
Copper
Manganese
Zinc
Boron

FIG. 19

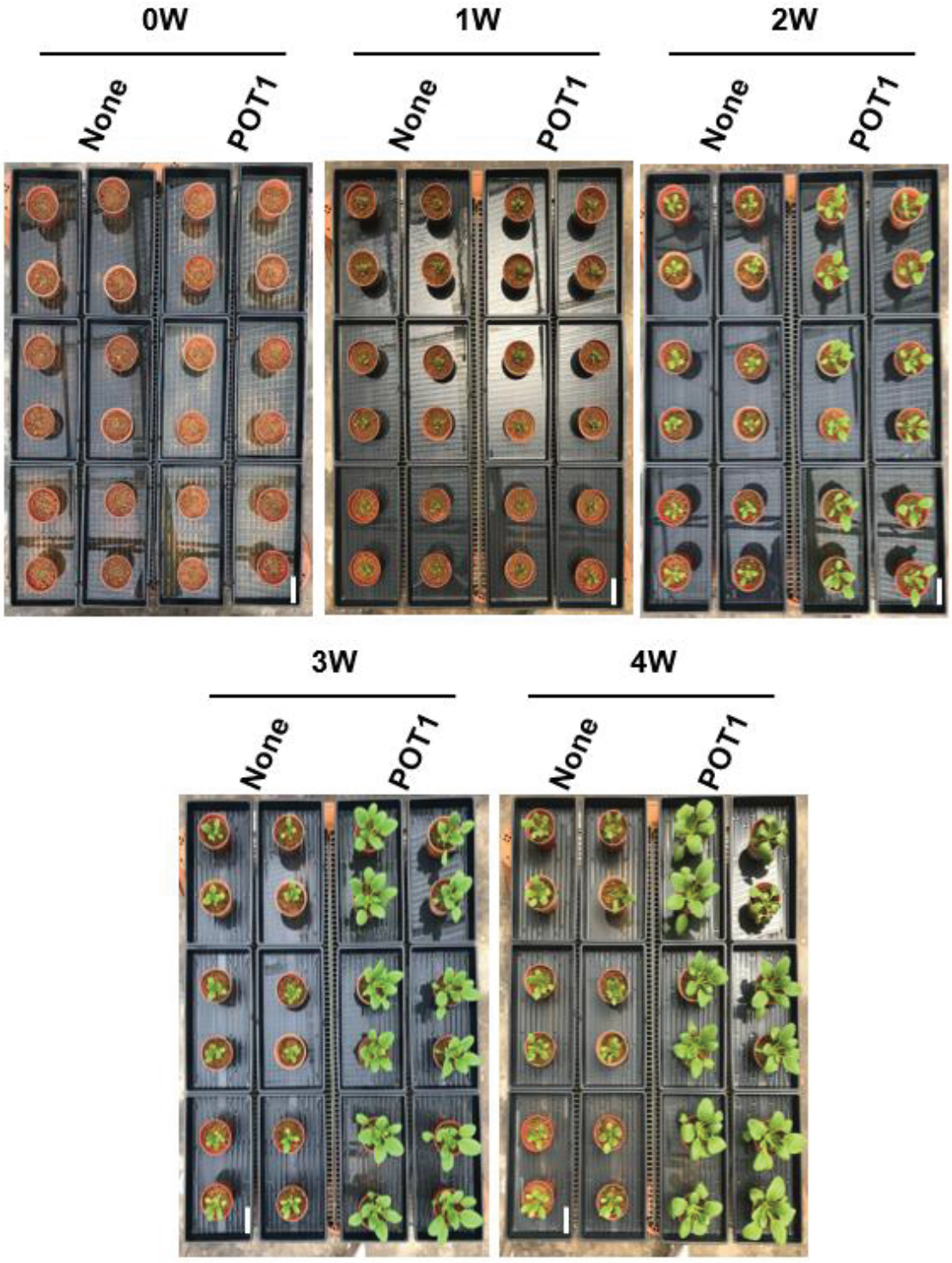

0W
1W
2W
3W
4W
None
POT1
None
POT1
None
POT1
None
POT1
None
POT1

FIG. 20

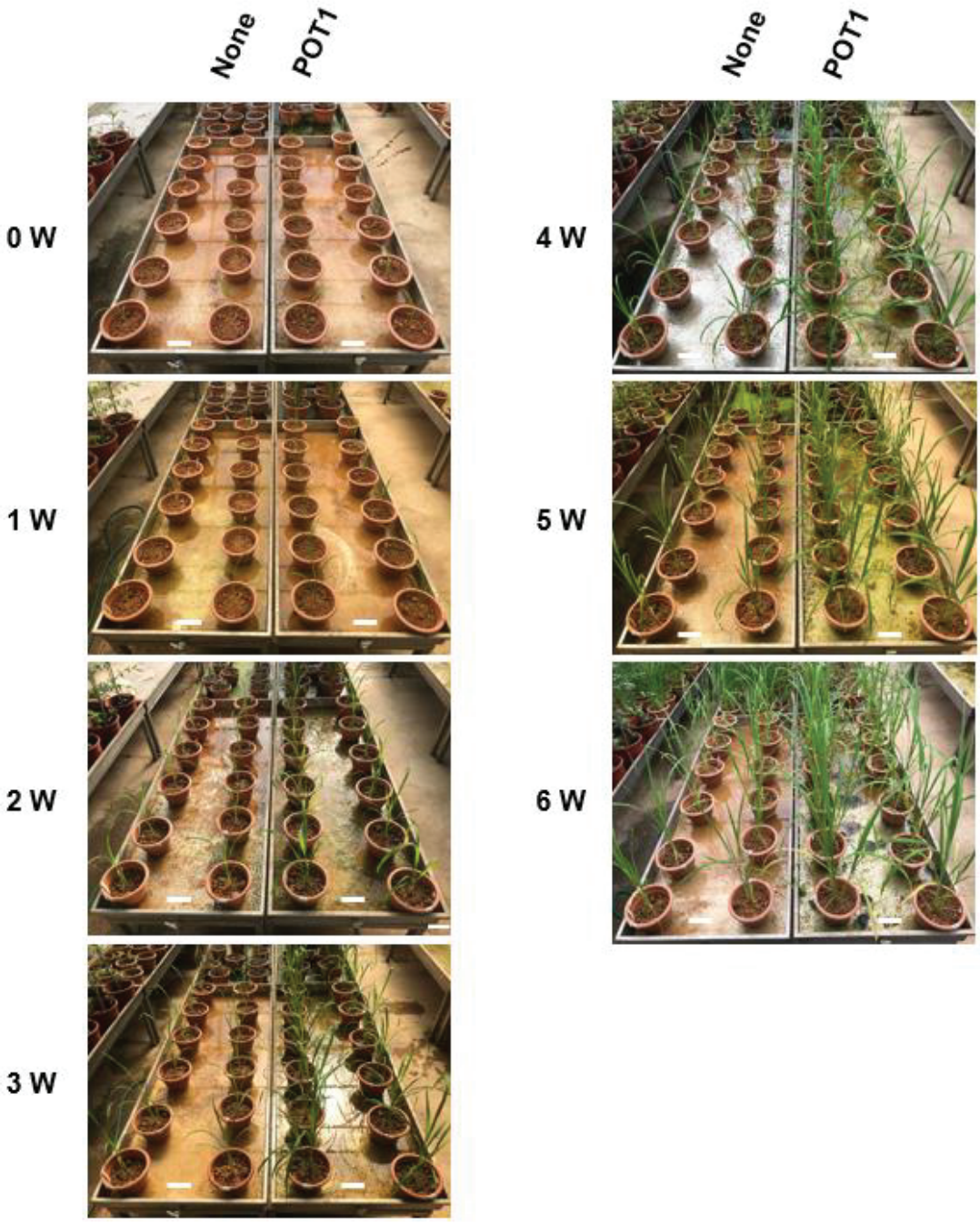


FIG. 21

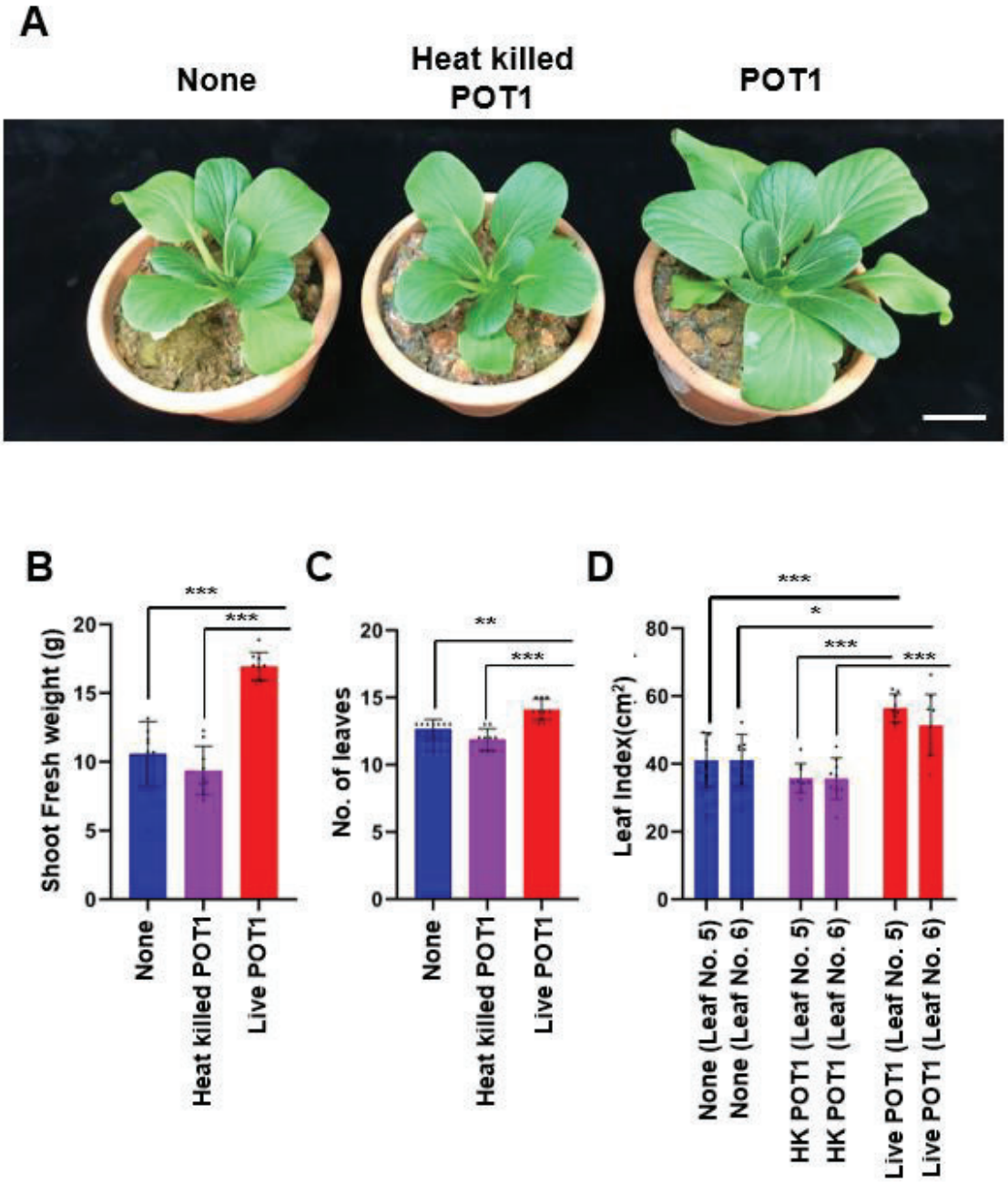

A
None
Heat killed POT1
POT1
B
Shoot Fresh weight (g)
0
5
10
15
20
***
***
None
Heat killed POT1
Live POT1
C
No. of leaves
0
5
10
15
20
**
***
None
Heat killed POT1
Live POT1
D
Leaf Index(cm²)
0
20
40
60
80
***
*
***
***
None (Leaf No. 5)
None (Leaf No. 6)
HK POT1 (Leaf No. 5)
HK POT1 (Leaf No. 6)
Live POT1 (Leaf No. 5)
Live POT1 (Leaf No. 6)

FIG. 22

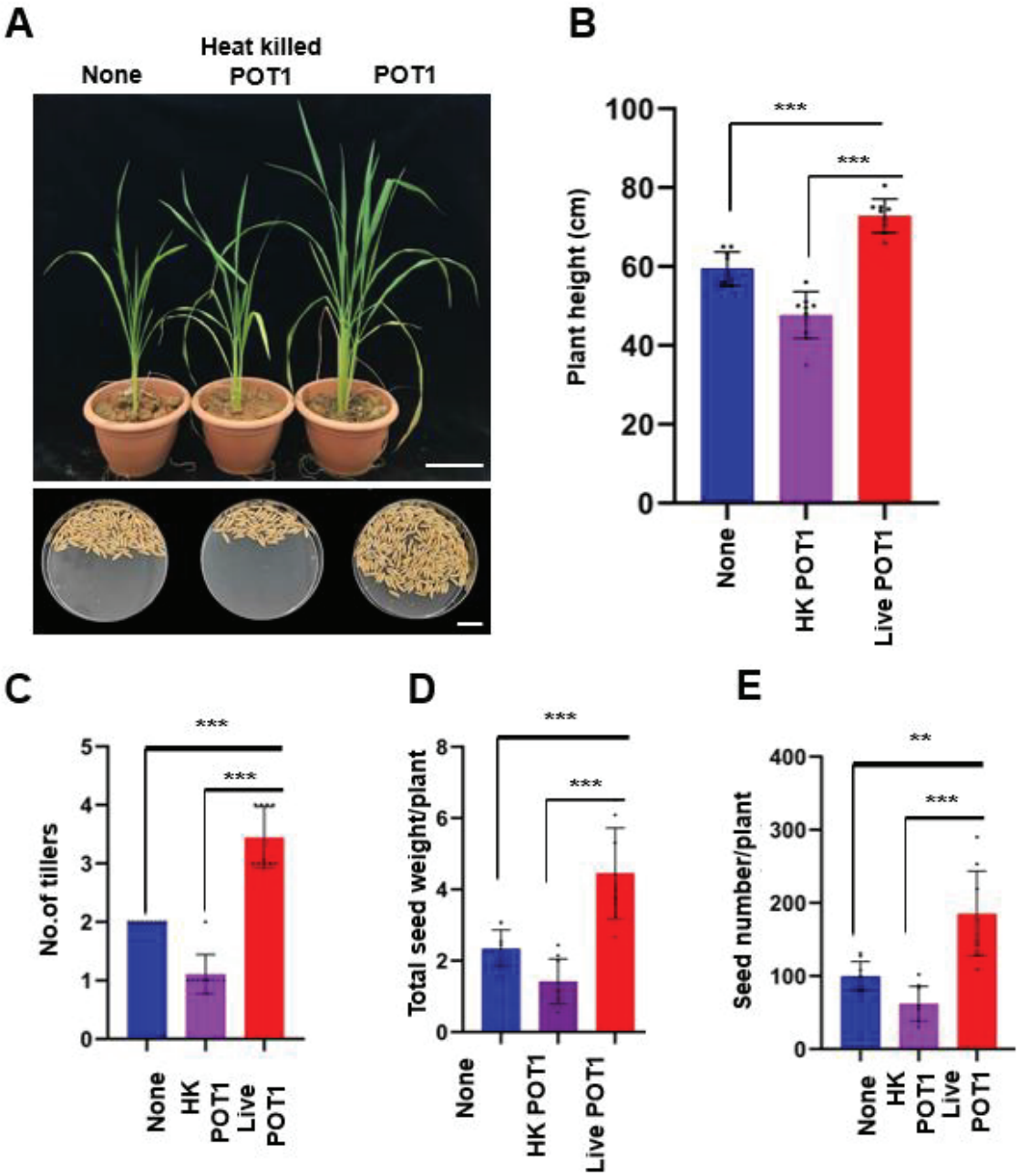

A
None
Heat killed POT1
POT1
B
Plant height (cm)
100
80
60
40
20
0
***
***
None
HK POT1
Live POT1
C
No.of tillers
5
4
3
2
1
0
***
***
None
HK POT1
Live POT1
D
Total seed weight/plant
8
6
4
2
0
***
***
None
HK POT1
Live POT1
E
Seed number/plant
400
300
200
100
0
**
***
None
HK POT1
Live POT1

FIG. 23

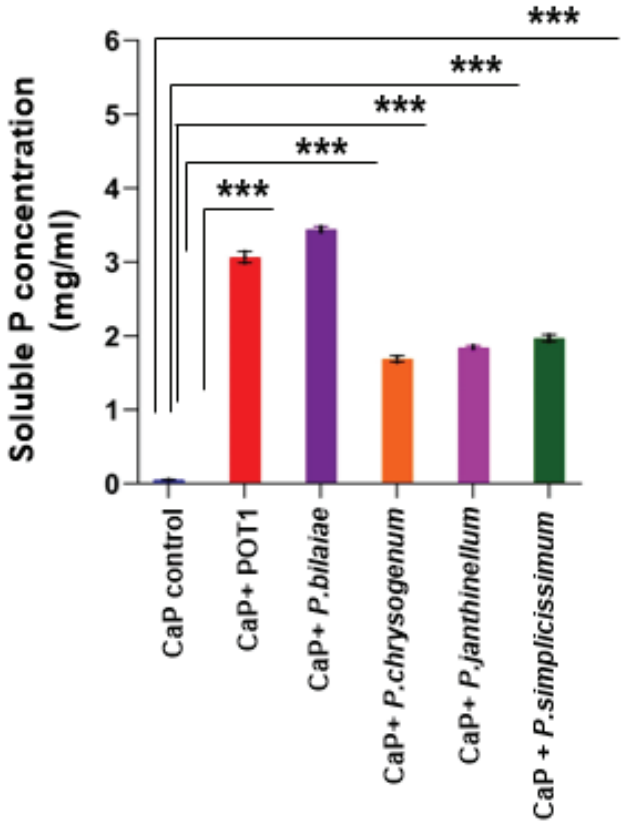

Soluble P concentration (mg/ml)
0
1
2
3
4
5
6
***
***
***
***
***
CaP control
CaP+ POT1
CaP+ P.bilaiae
CaP+ P.chrysogenum
CaP+ P.janthinellum
CaP + P.simplicissimum

FIG. 24

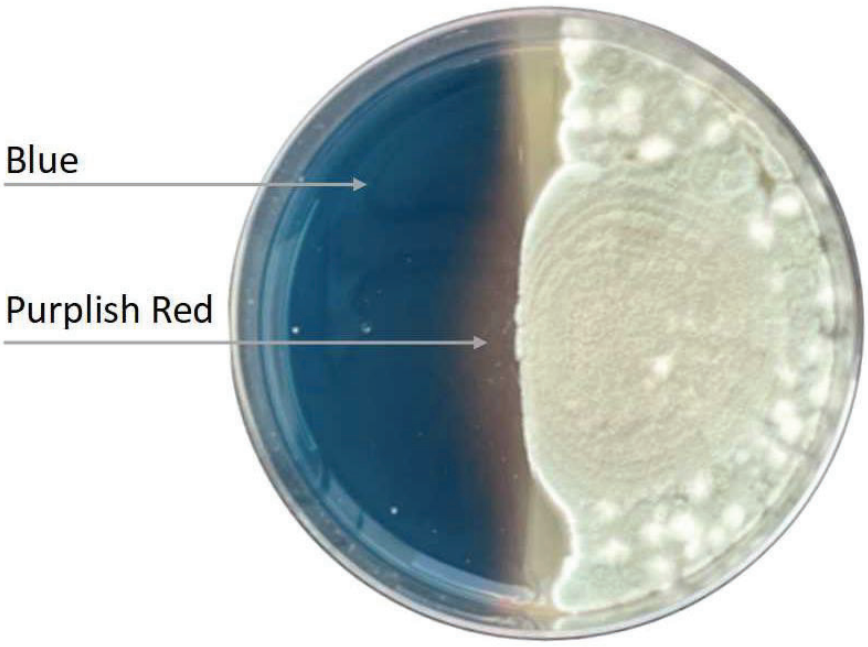
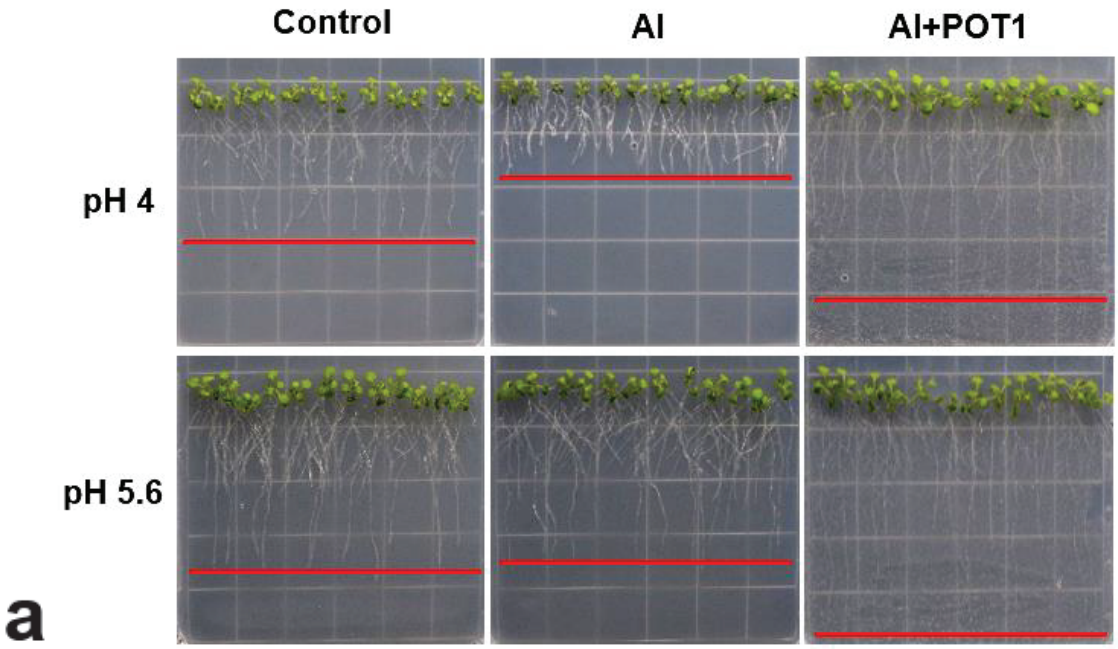
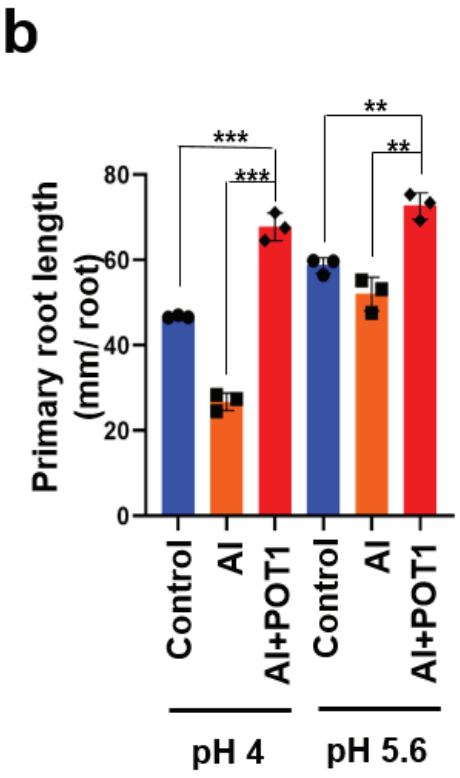

Blue
Purplish Red

FIG. 25


Control
Al
Al+POT1
pH 4
pH 5.6
a


b
Primary root length (mm/ root)
80
60
40
20
0
***
***
**
**
Control
Al
Al+POT1
Control
Al
Al+POT1
pH 4
pH 5.6

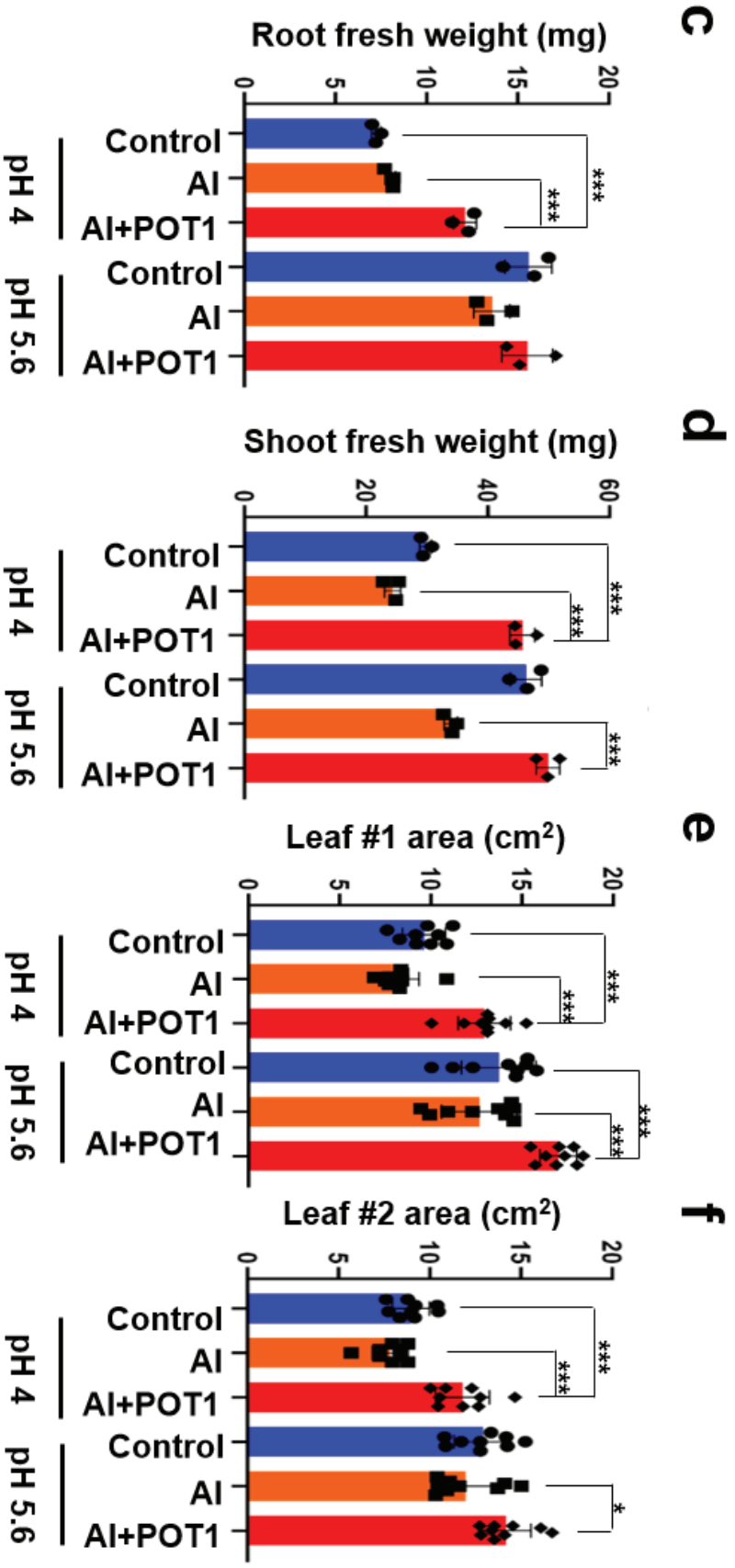

c
Root fresh weight (mg)
0
5
10
15
20
Control
Al
Al+POT1
Control
Al
Al+POT1
pH 4
pH 5.6
***
***
d
Shoot fresh weight (mg)
0
20
40
60
Control
Al
Al+POT1
Control
Al
Al+POT1
pH 4
pH 5.6
***
***
***
e
Leaf #1 area (cm²)
0
5
10
15
20
Control
Al
Al+POT1
Control
Al
Al+POT1
pH 4
pH 5.6
***
***
***
***
f
Leaf #2 area (cm²)
0
5
10
15
20
Control
Al
Al+POT1
Control
Al
Al+POT1
pH 4
pH 5.6
***
***
*

FIG. 25 (cont'd)

FIG. 26

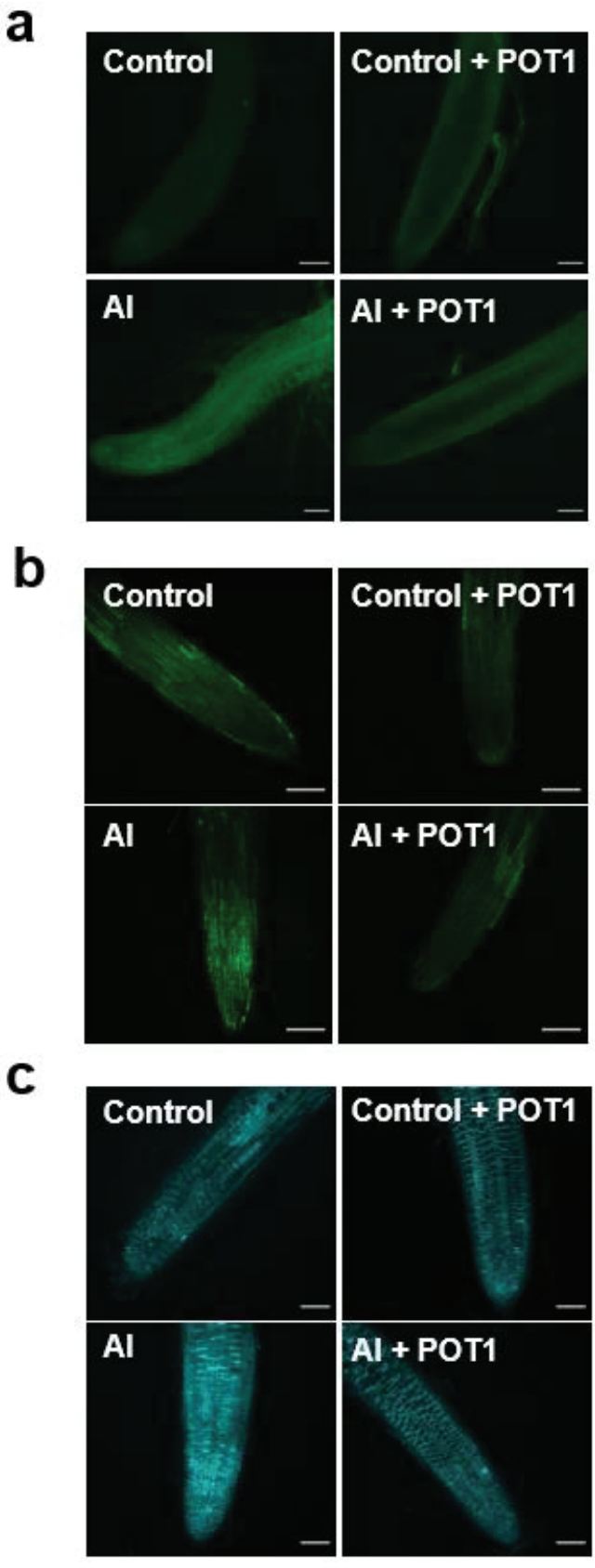
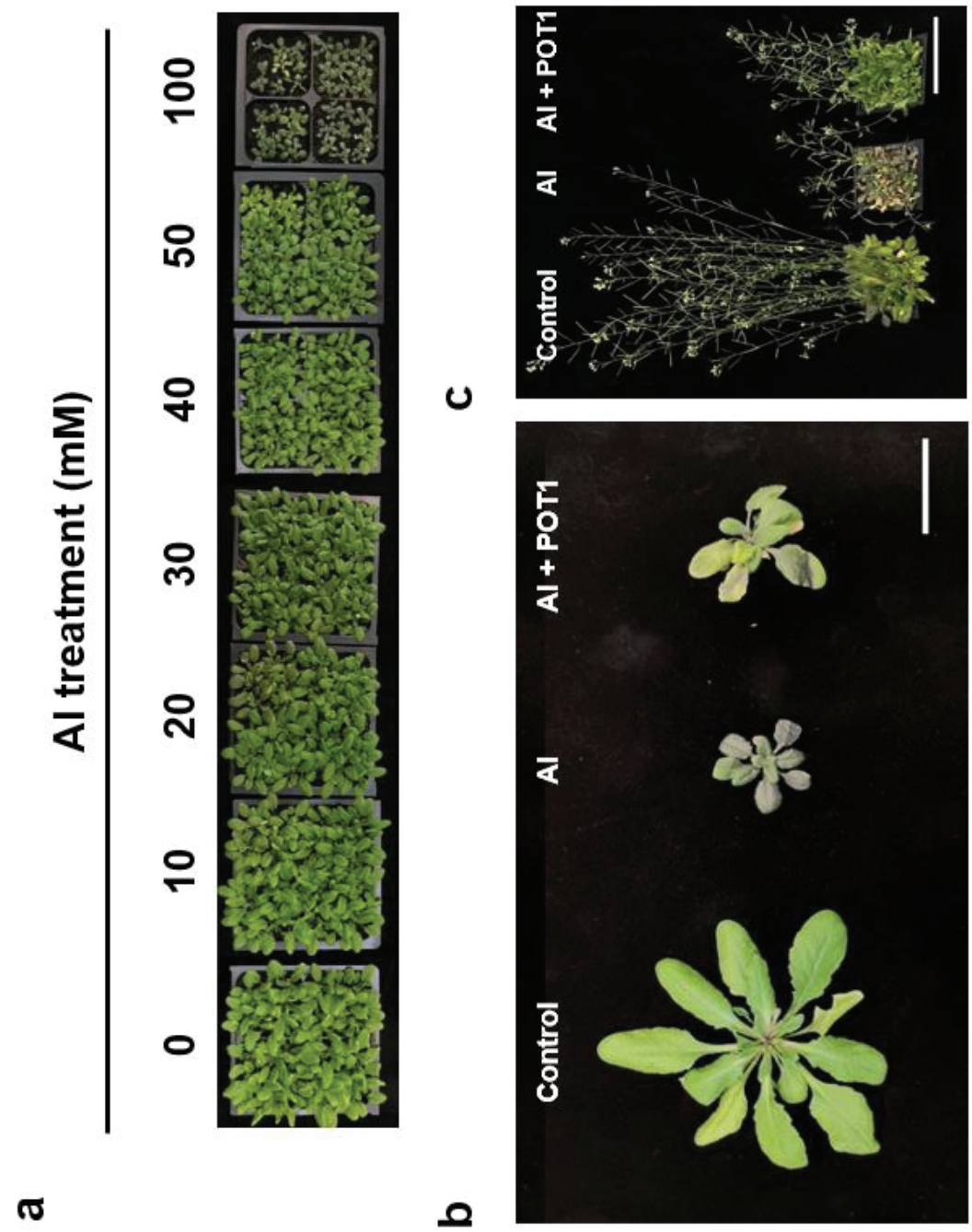

a
Control
Control + POT1
Al
Al + POT1
b
Control
Control + POT1
Al
Al + POT1
c
Control
Control + POT1
Al
Al + POT1

FIG. 27


a
Al treatment (mM)
0
10
20
30
40
50
100
b
Control
Al
Al + POT1
c
Control
Al
Al + POT1

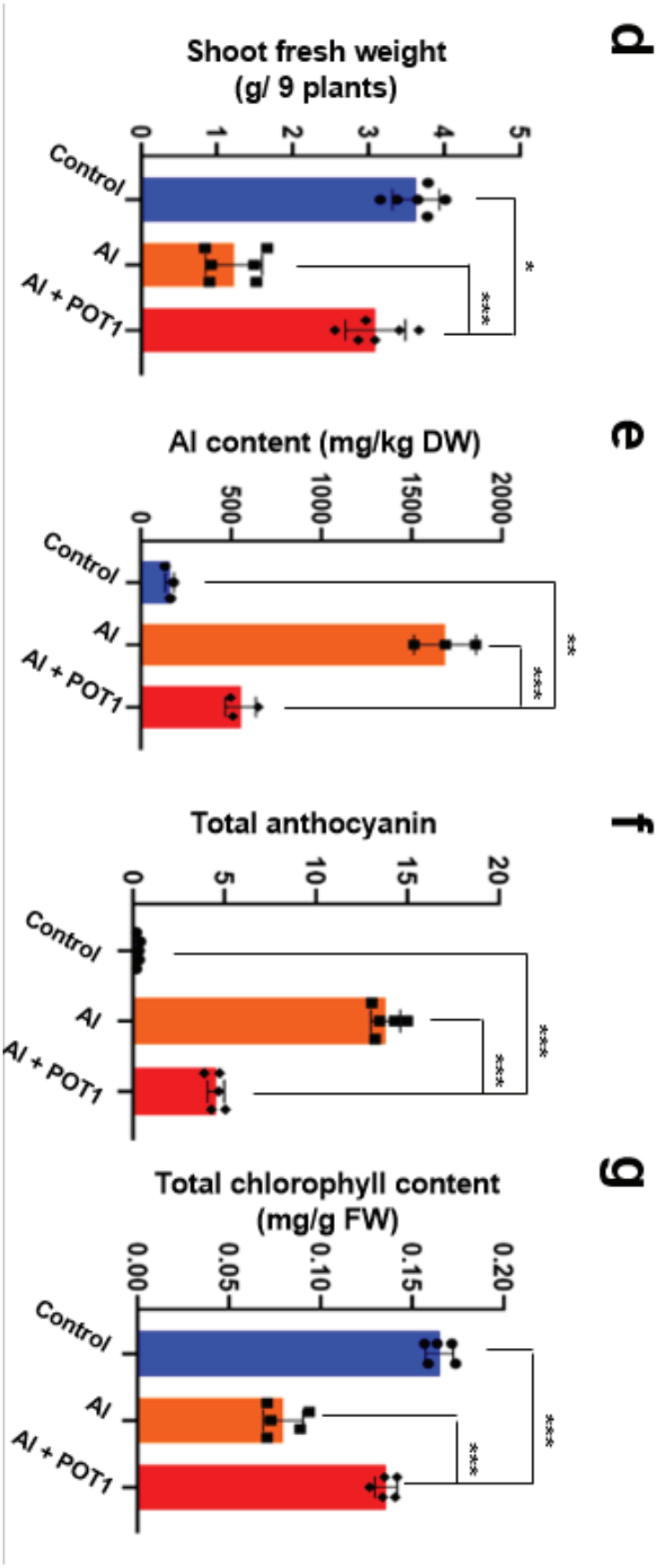

d
Shoot fresh weight
(g/ 9 plants)
0
1
2
3
4
5
Control
Al
Al + POT1
*
***
e
Al content (mg/kg DW)
0
500
1000
1500
2000
Control
Al
Al + POT1
**
***
f
Total anthocyanin
0
5
10
15
20
Control
Al
Al + POT1
***
***
g
Total chlorophyll content
(mg/g FW)
0.00
0.05
0.10
0.15
0.20
Control
Al
Al + POT1
***
***

FIG. 27 (cont'd)

FIG. 28

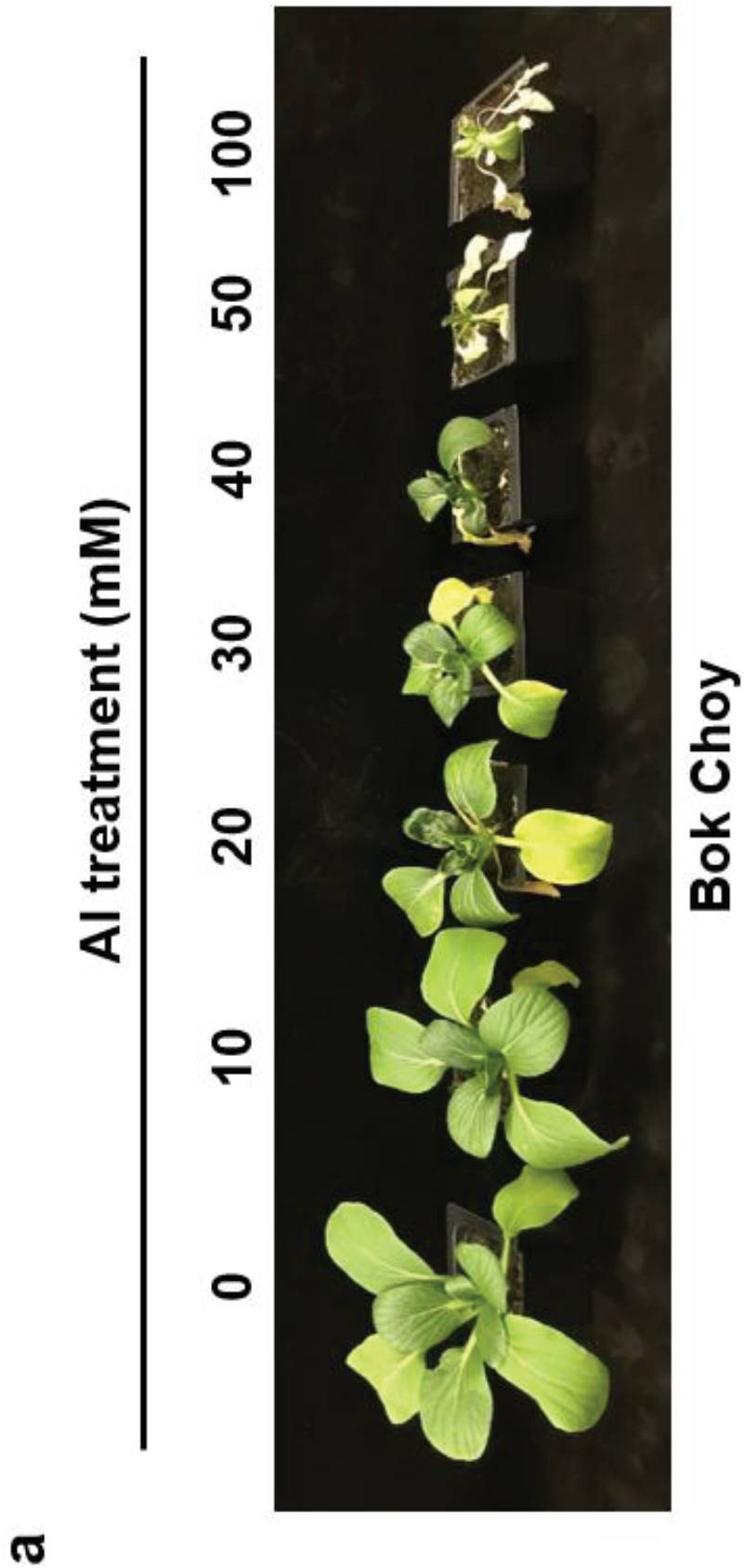


FIG. 28 (cont'd)

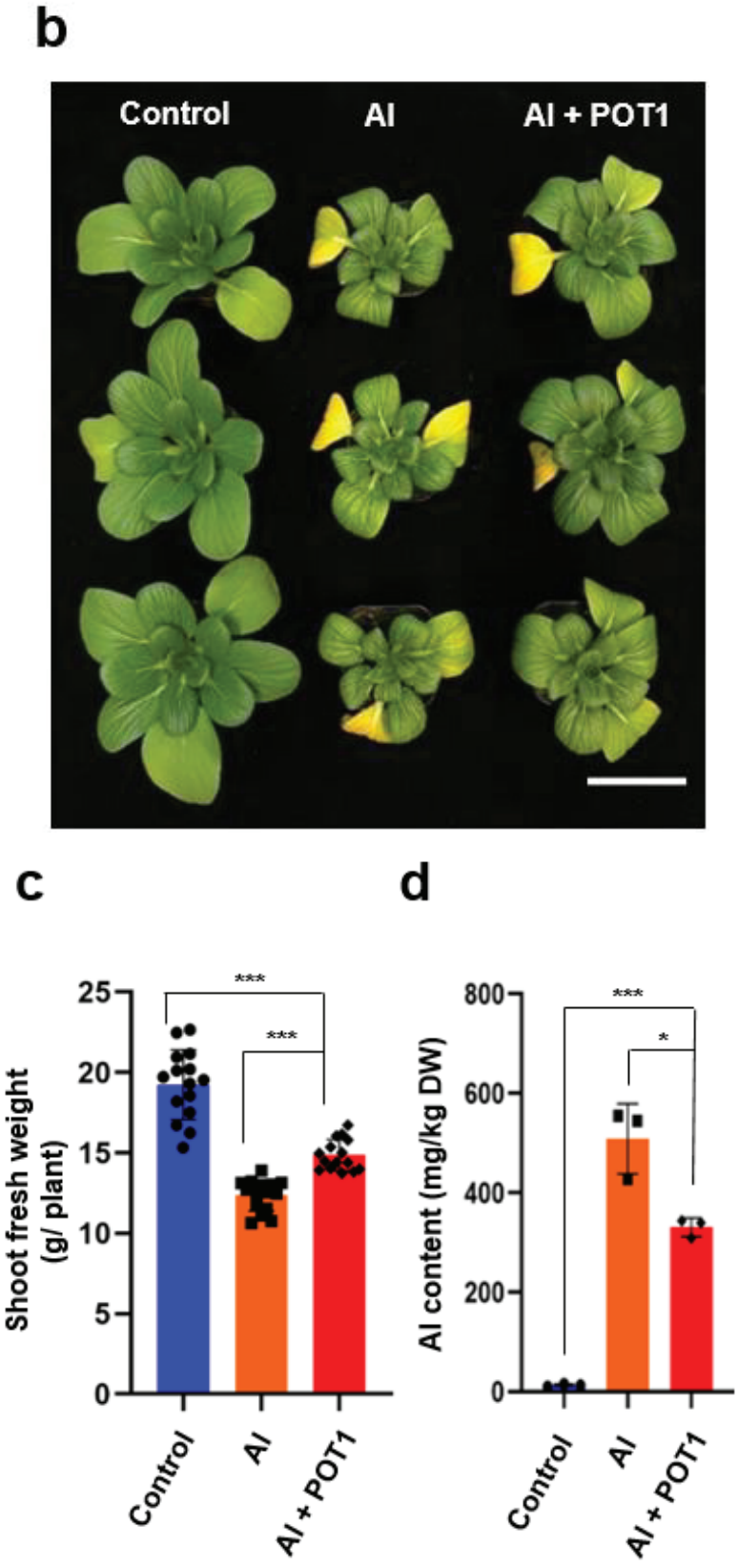

b
Control
Al
Al + POT1
c
d
Shoot fresh weight (g/ plant)
25
20
15
10
5
0
***
***
Control
Al
Al + POT1
Al content (mg/kg DW)
800
600
400
200
0
***
*
Control
Al
Al + POT1

FIG. 29

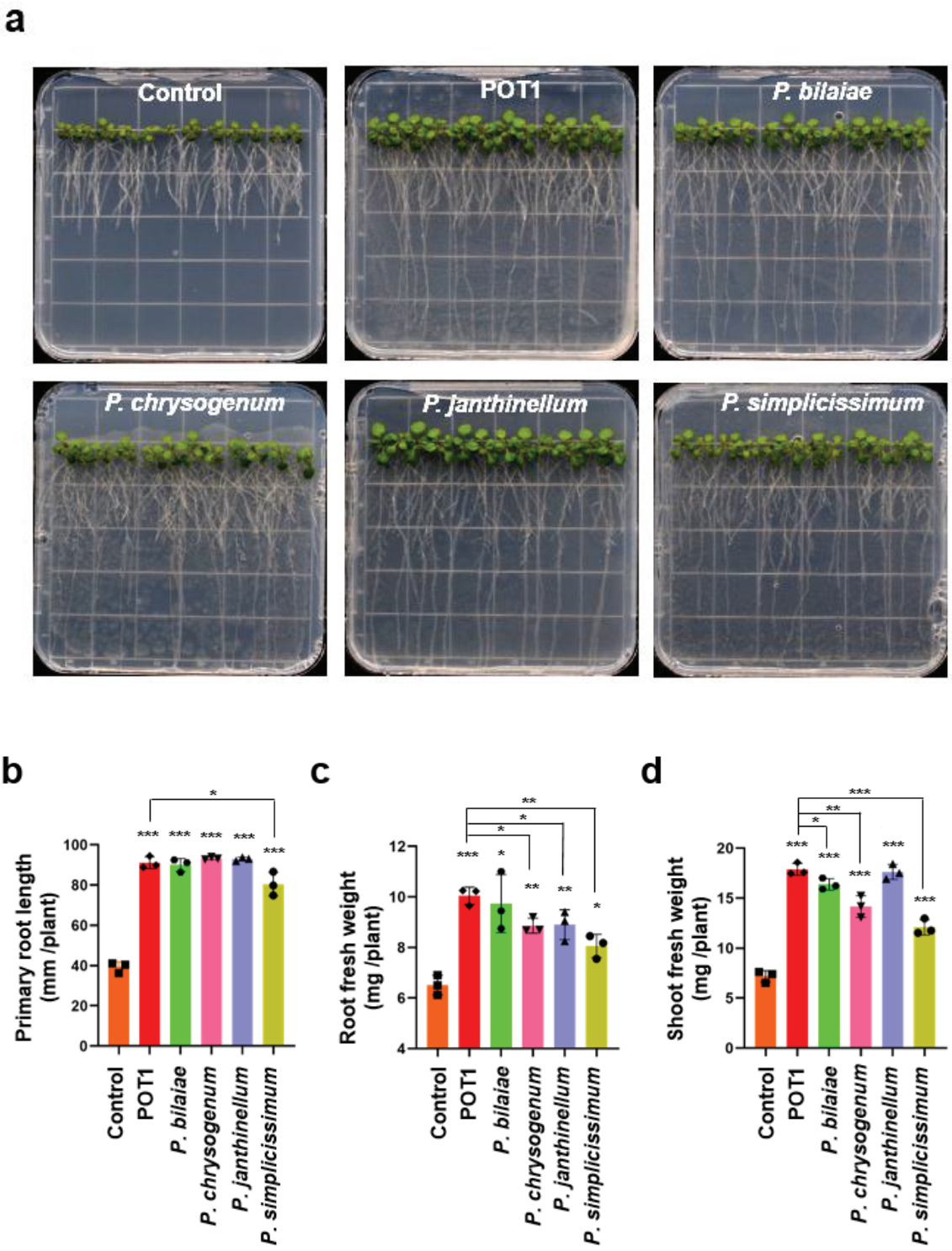

a
Control
POT1
P. bilaiae
P. chrysogenum
P. janthinellum
P. simplicissimum
b
Primary root length (mm /plant)
c
Root fresh weight (mg /plant)
d
Shoot fresh weight (mg /plant)
Control
POT1
P. bilaiae
P. chrysogenum
P. janthinellum
P. simplicissimum

FIG. 30

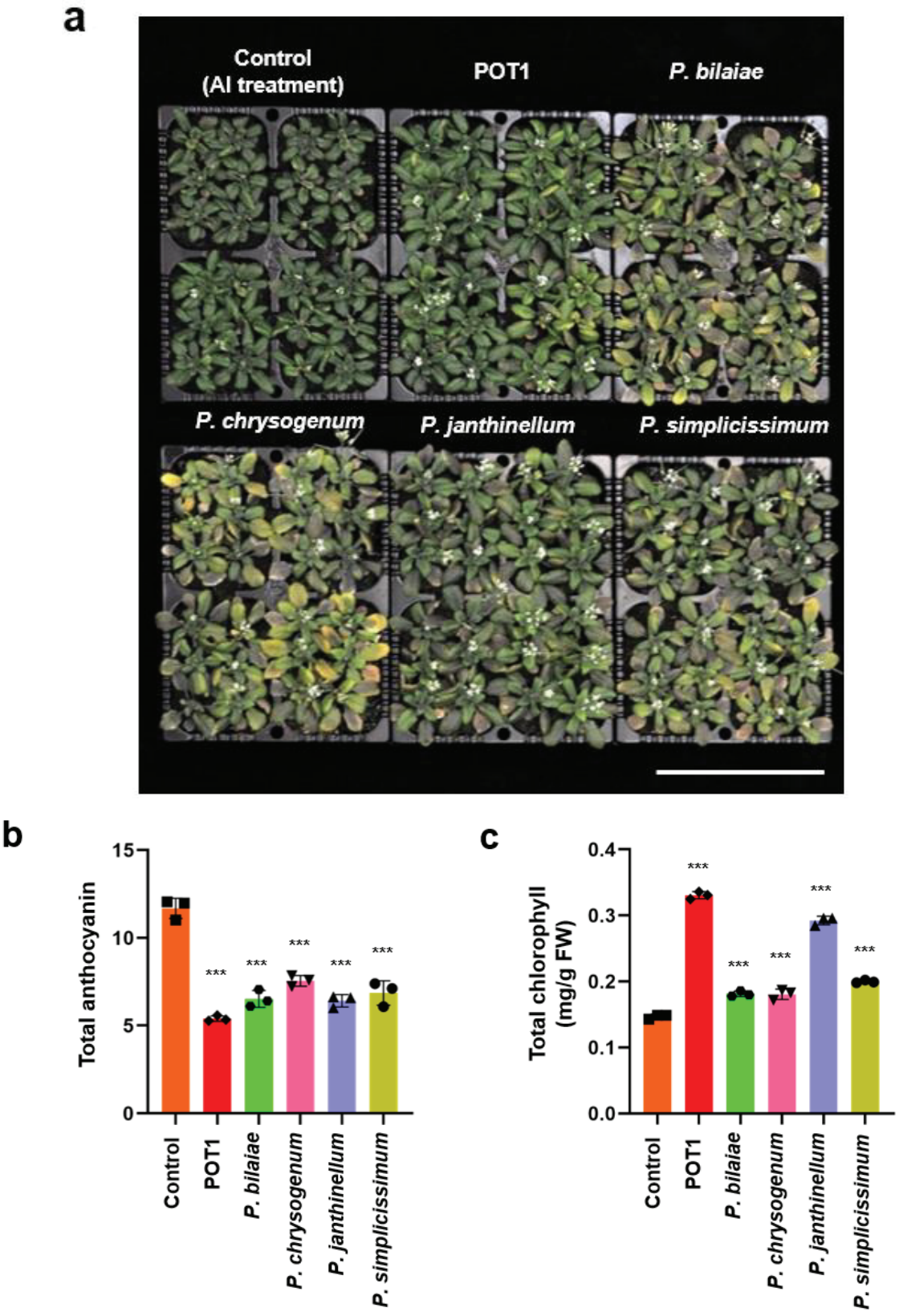

a
Control
(Al treatment)
POT1
P. bilaiae
P. chrysogenum
P. janthinellum
P. simplicissimum
b
Total anthocyanin
15
10
5
0
***
Control
POT1
P. bilaiae
P. chrysogenum
P. janthinellum
P. simplicissimum
c
Total chlorophyll
(mg/g FW)
0.4
0.3
0.2
0.1
0.0
***
Control
POT1
P. bilaiae
P. chrysogenum
P. janthinellum
P. simplicissimum

FIG. 31

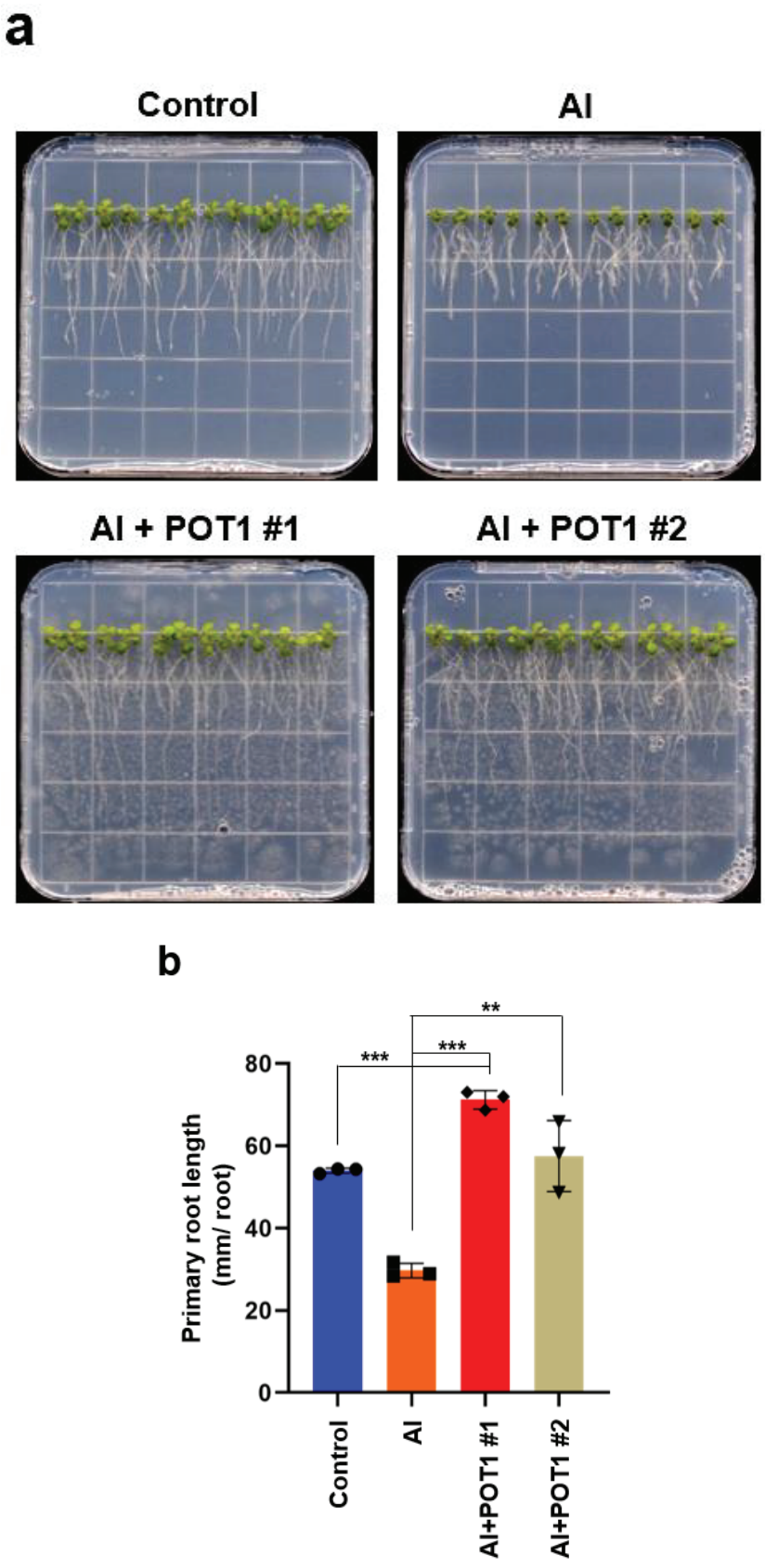

a
Control
Al
Al + POT1 #1
Al + POT1 #2
b
Primary root length (mm/ root)
80
60
40
20
0
***
***
**
Control
Al
Al+POT1 #1
Al+POT1 #2

FIG. 32

a

