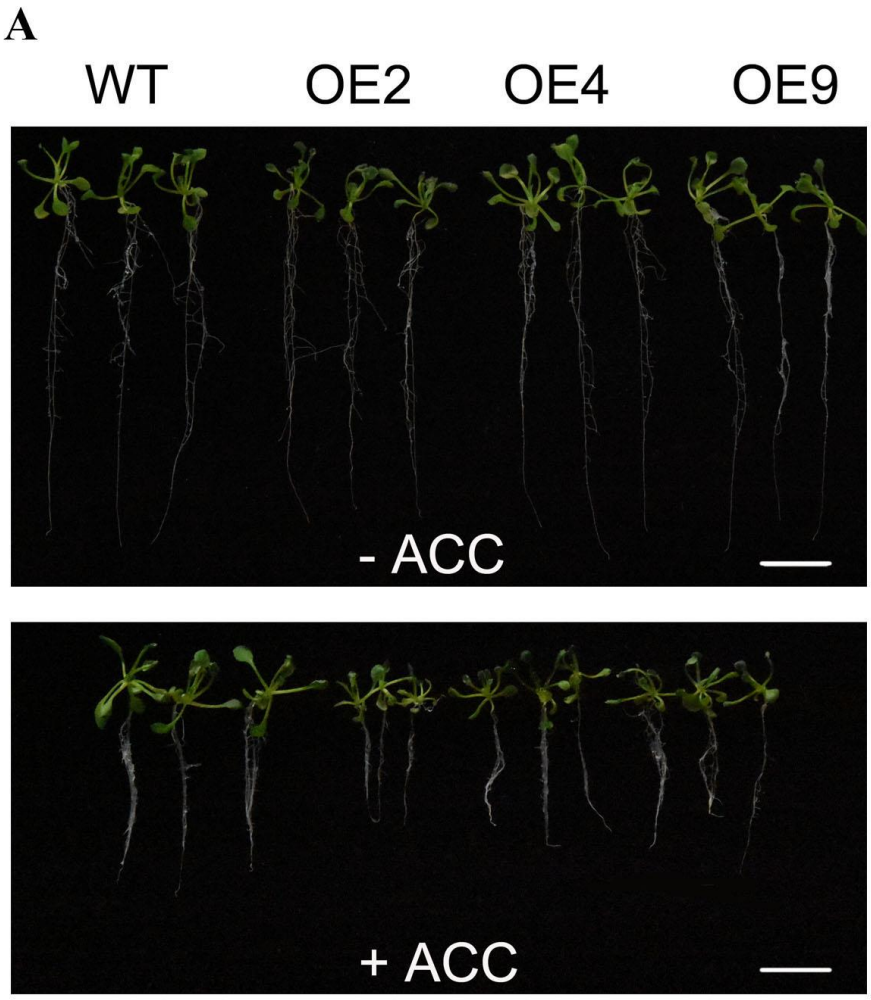
A
WT
OE2
OE4
OE9
- ACC
+ ACC
B
Root length (cm)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Col
OE2
OE4
OE9
*
*
*
-ACC
+ACC

**FIGURE S1. Phenotypic characterization of wild-type (WT) and GhEIL1-OE (over-expressing) *Arabidopsis* plants. (A)** The phenotype of WT and three different homozygous GhEIL1-OE lines with or without ACC treatments. **(B)** Root length of WT and GhEIL1-OE lines with or without ACC treatments. The seedlings were planted and grown in MS-medium with or without 10 μM ACC for 16 days then observed and measured. Scale bar = 1 cm. Each value is the mean ± SE, n = 30. The significant differences were evaluated by Tukey' HSD test: ∗$p < 0.05$.

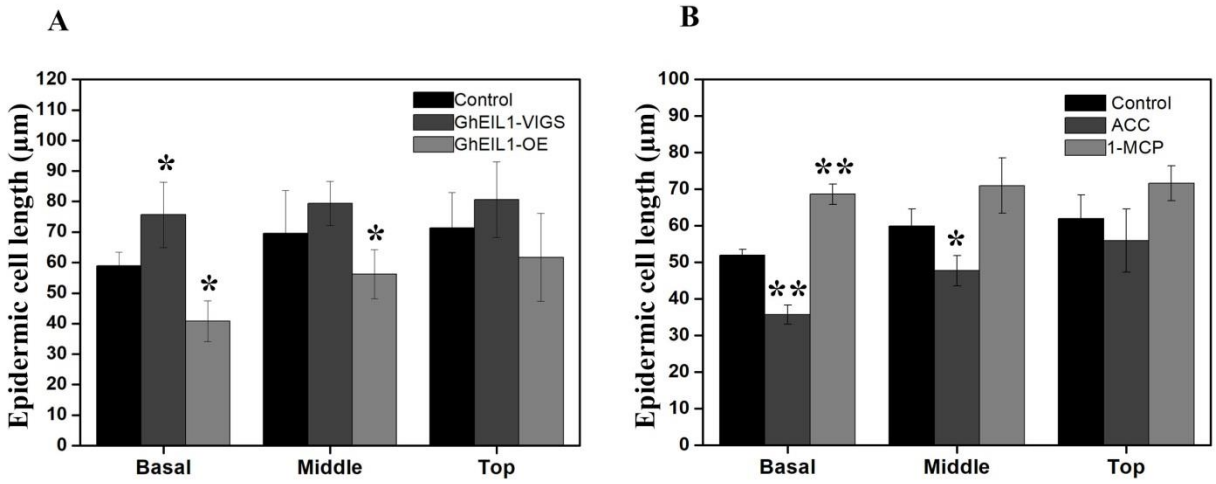


**FIGURE S2. Measurement of cell length in the petals after transient transformation and the petals after hormone treatments. (A)** The cell length of controls, GhEIL1-VIGS and GhEIL1-OE petals in each region. **(B)** The cell lengthof petals in control, 100 μM ACC and 100 μM 1-MCP treatments in each region. Three biological replicates were analyzed for each measurement. All values indicate means ± SD. Asterisks indicate a significant difference: ∗$p < 0.05$, ∗∗$p < 0.01$, $n > 50$.

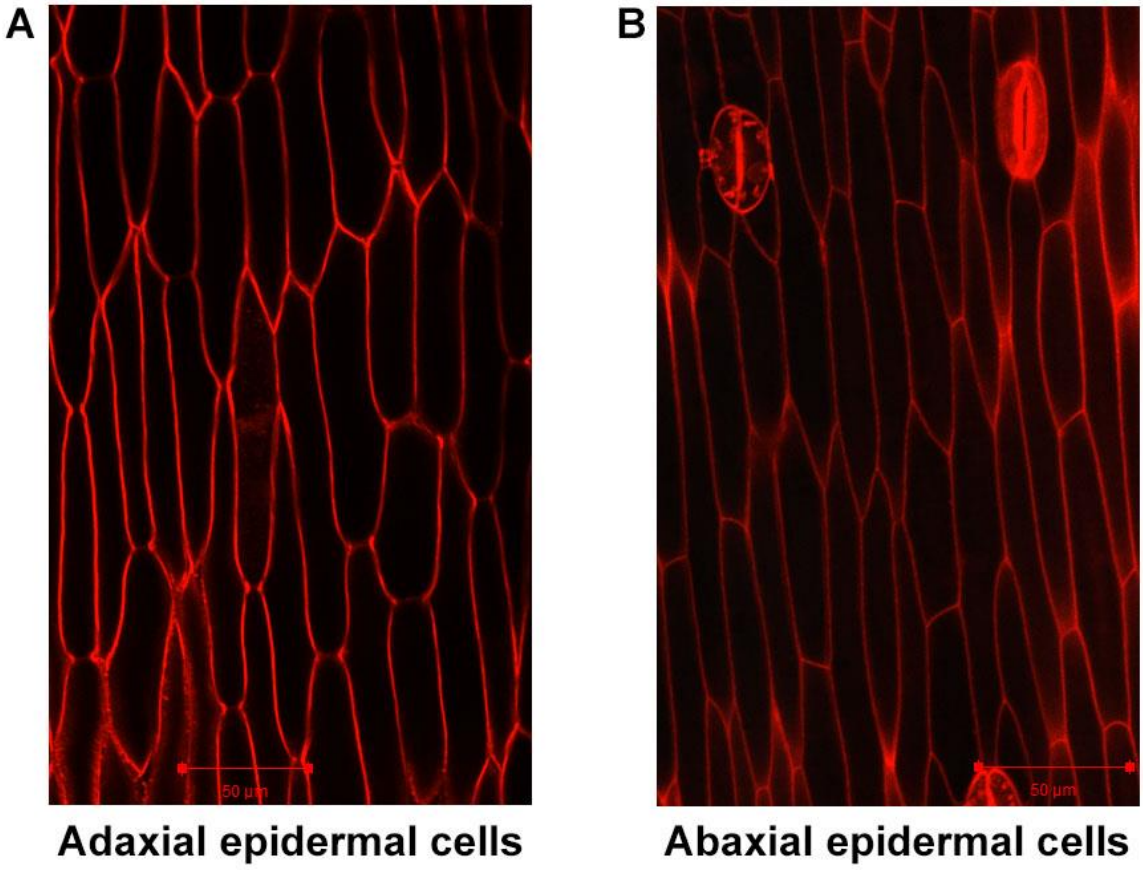


**FIGURE S3. Morphological characterization of petal cells. (A)** The adaxial epidermal cells in petal. **(B)** The abaxial epidermal cells in petal. Scale bar represents 50 µm.

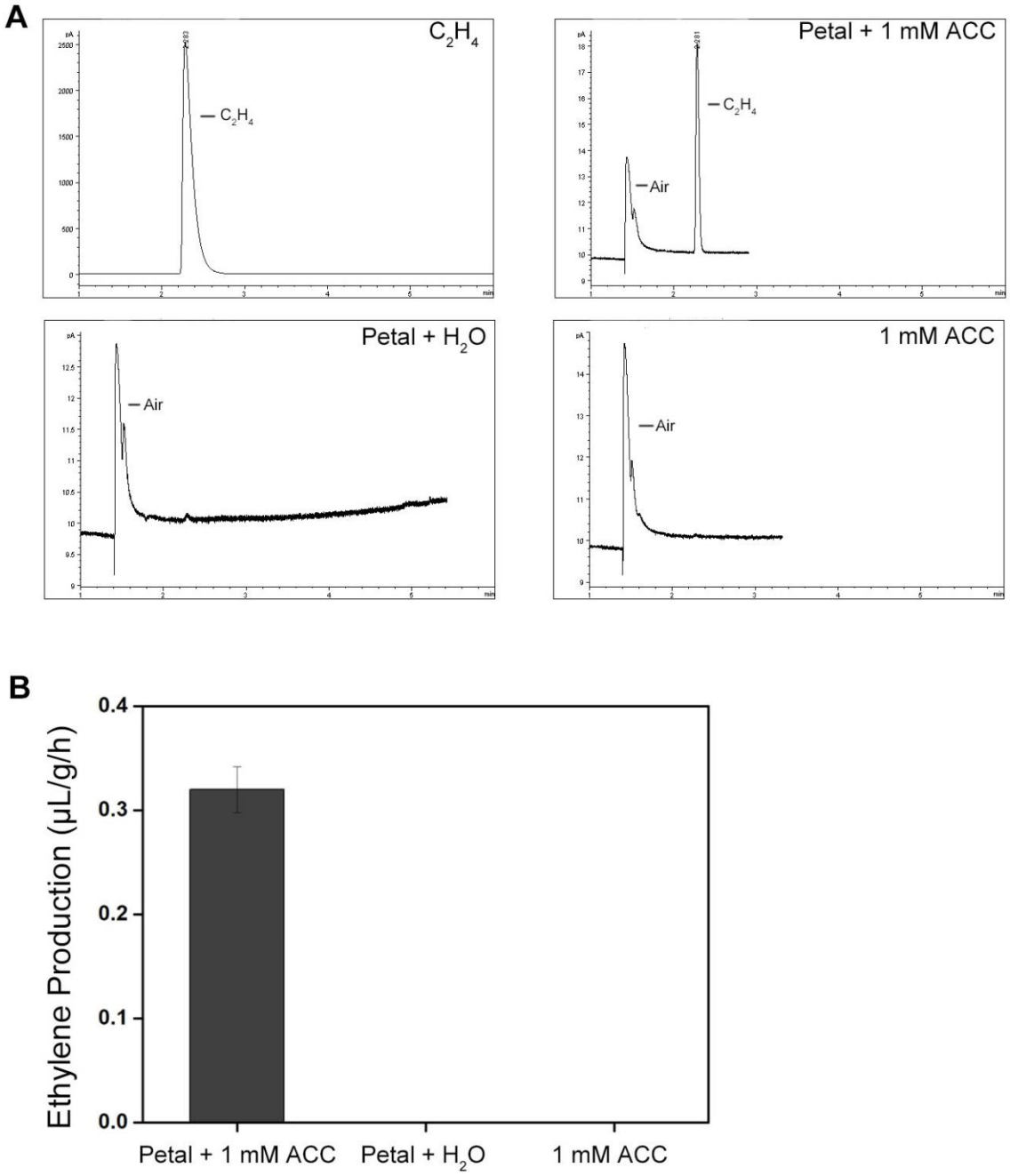


**FIGURE S4. Measurement of ethylene content. (A)** GC profiles of the gas compounds from different treatments after incubated at 30°C for 1 hour. The petals used here were in stage 3, which were used for hormone treatments. **(B)** The ethylene production in different treatments. The value indicates means ± SD.

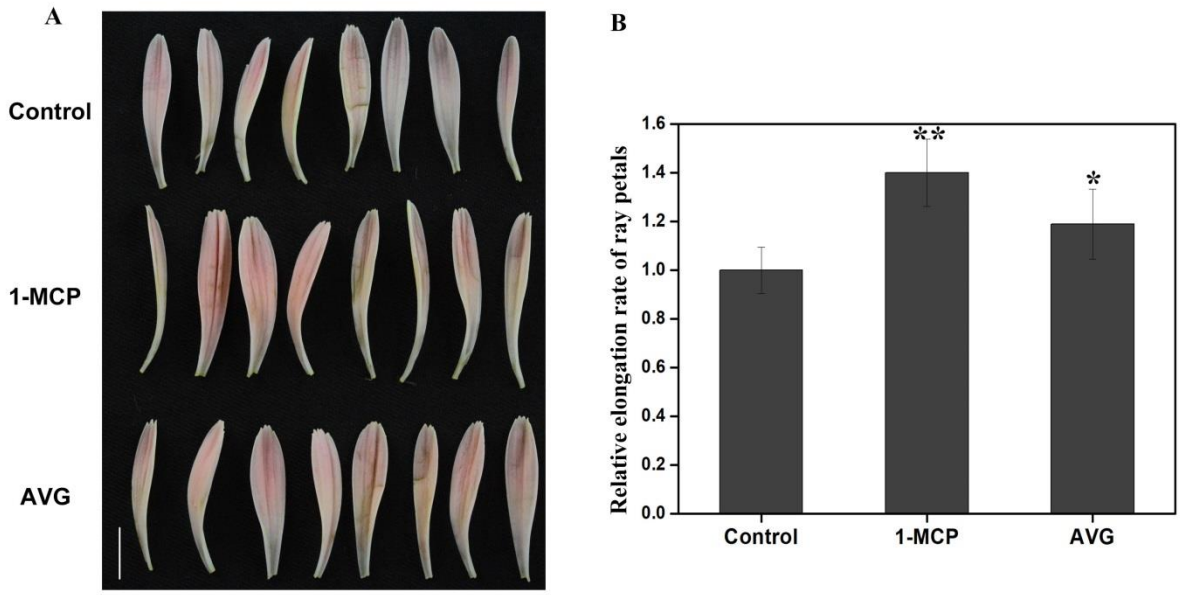


**FIGURE S5. The effects of AVG and 1-MCP on petal growth in *G. hybrida*. (A)** The phenotypes of petals treated with deionized water (control), AVG and 1-MCP for 7 days. **(B)** The relative elongation rate of ray petals after 7 days treatments. Scale bar represents 1 cm. All values indicate means ± SD. Asterisks indicate a significant difference: $*p < 0.05$, $**p < 0.01$.