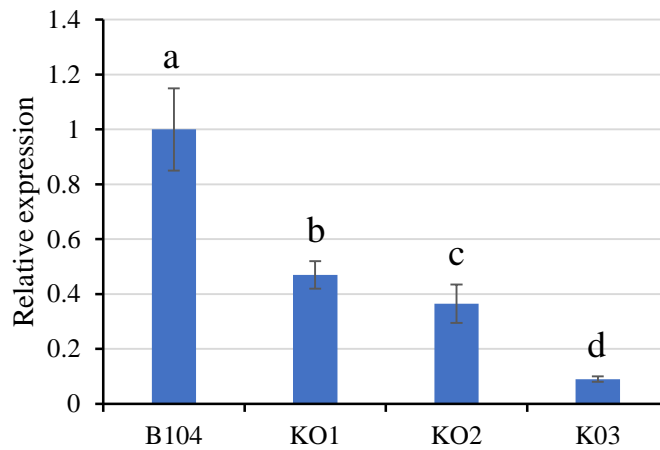
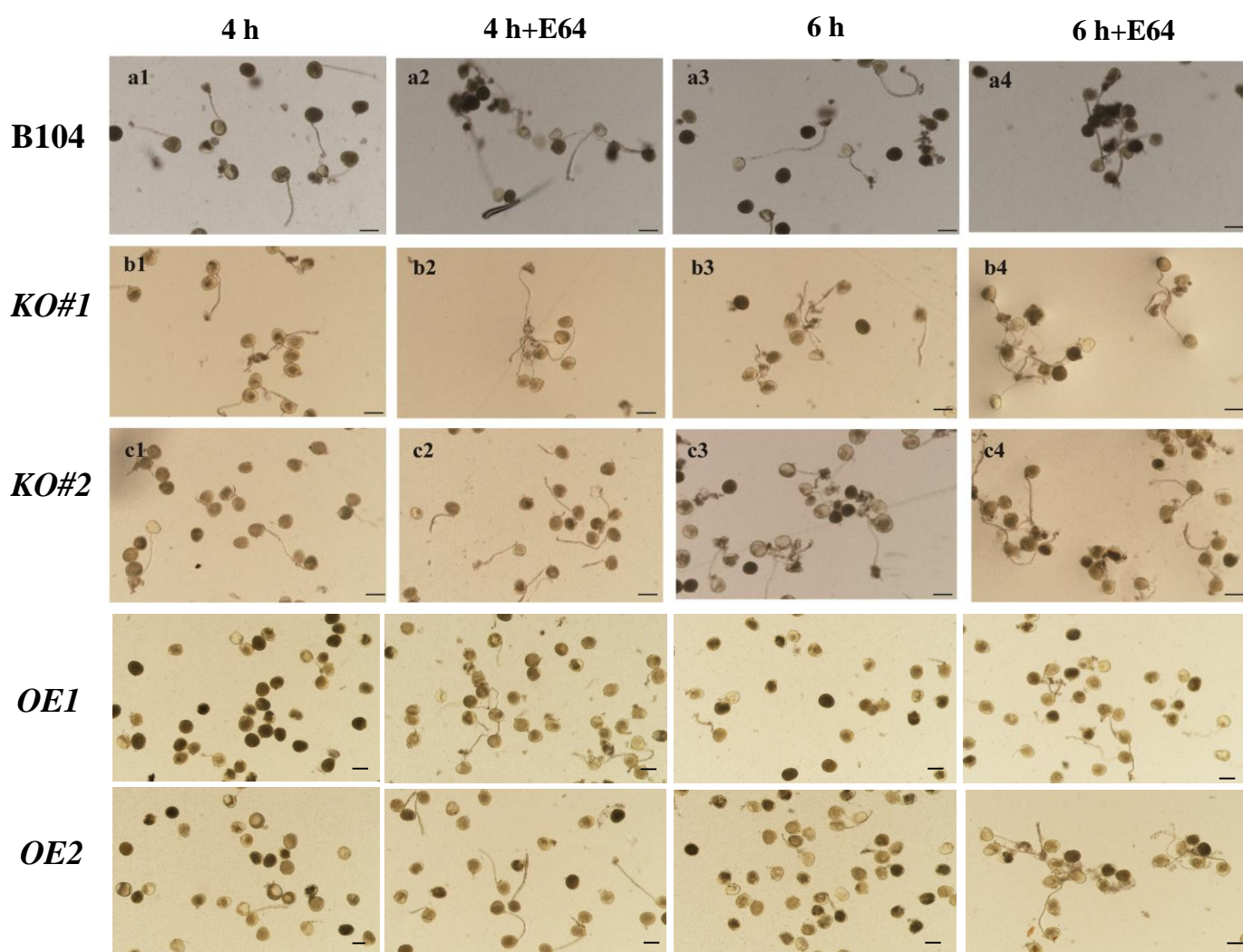


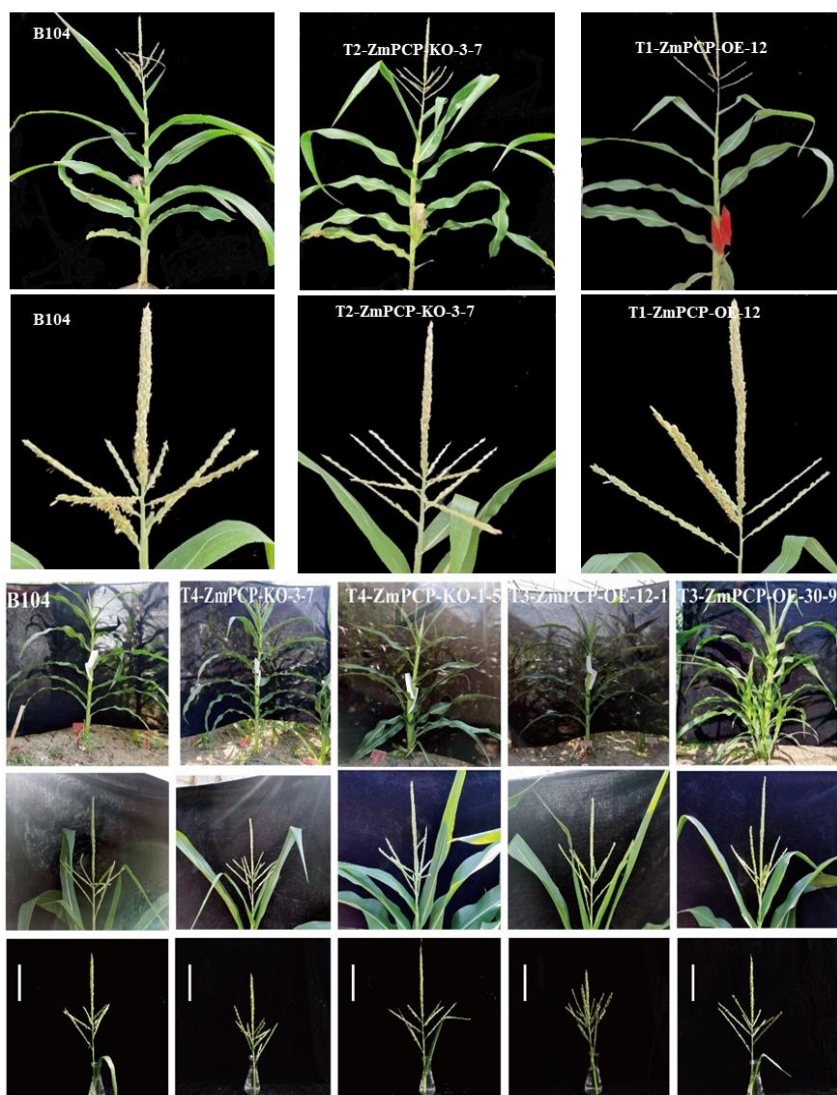
**Figure S1.** The sequencing results of pollen grains of T2 mutants.



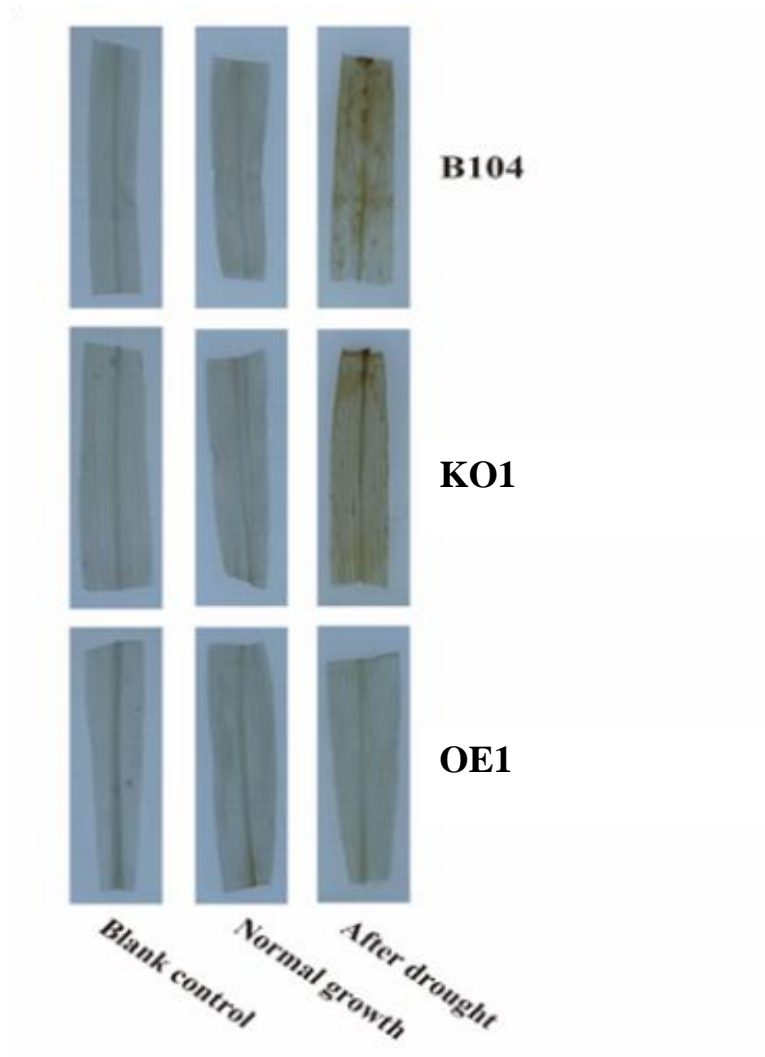
**Figure S2.** The relative expression levels of *PCP* were analyzed via RT-qPCR in *pcp* mutant lines. Data represent means  $\pm$  SD of three replicates. Significant differences were indicated with different letters ( $P < 0.05$ , one-way ANOVA).



**Figure S3.** Pictures of pollen germination and growth *in vitro* between wild type and transgenic lines after 4 h and 6 h incubation. Scale bar: 100  $\mu$ m.



**Figure S4.** Phenotypic observation of WT and transgenic maize at flowering stage. Scale bar: 10 cm.



**Figure S5.** Measurement of  $H_2O_2$  content in WT and transgenic maize in response to drought stress by DAB staining.

**Table S1.** PCR primers used in this study.

Primer name	Primer sequence (5'-3')	Usage
sgRNA-T1-F	cagt ggtctca GGCA CCTCGATGTGCTCAATGTTG	Synthesis of sgRNA
sgRNA-T1-R	cagt ggtctca AAACCAACATTGAGCACATCGAGG	
sgRNA-T2-F	cagt ggtctca GCCG TGCTGCAGCCTCATAATGC	
sgRNA-T2-R	cagt ggtctca AAAC GCATTATGAGGCTGCAGCA	
sgRNA-T3-F	cagtgggtctcaTGTGCGGTGGTGACAGGCTGATGA	
sgRNA-T3-R	cagt ggtctca AAACTCATCAGCCTGTCACCACCG	
psgA-T1	GACCATAGCACAAGACAGGCGT	Detection of intermediate vectors
psgB-T2	CGAATGAGCCCTGAAGTCTGAAC	
psgC-T3	CATTTTCATTACCTCTTTCTCC	
pOSCas9-ZmCP03-F	GATGGGTTTTTTATGATTAGAGTCC	Detection of expression vectors
pOSCas9-ZmCP03-R	GGCTCGTATGTTGTGTGG	