



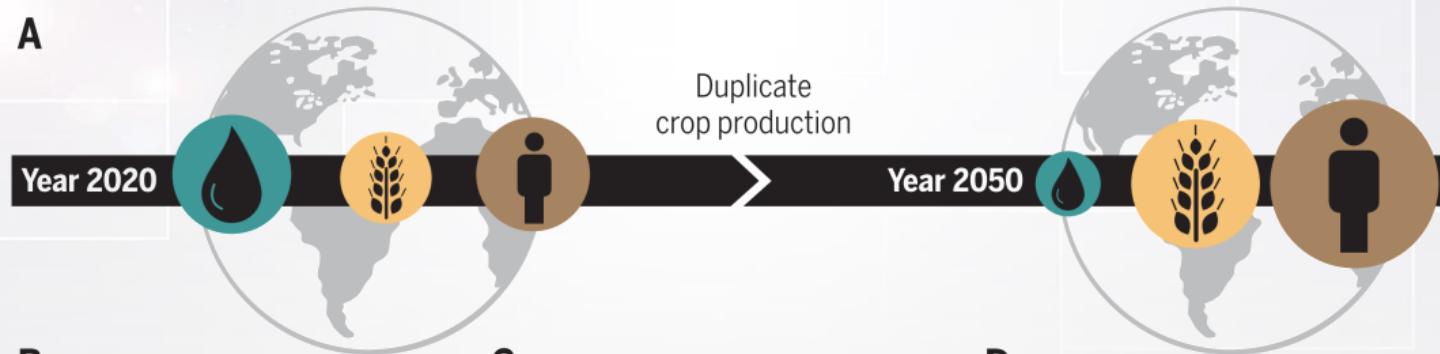
The AP2 transcription factor NtERF172 confers drought resistance by modifying *NtCAT*

Yangyang Li

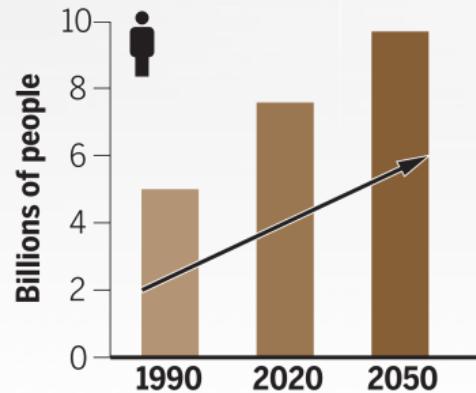
Hunan Tobacco Research Institute
Tobacco Agricultural Experiment Station of Central-South China

Background

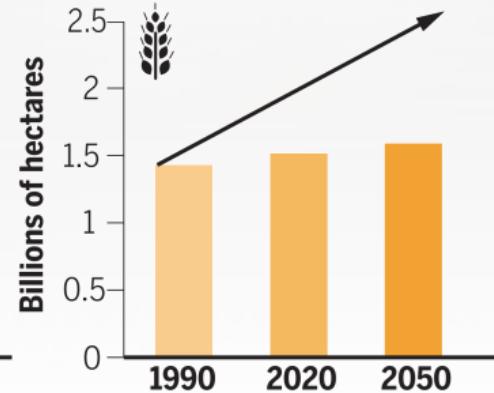
A



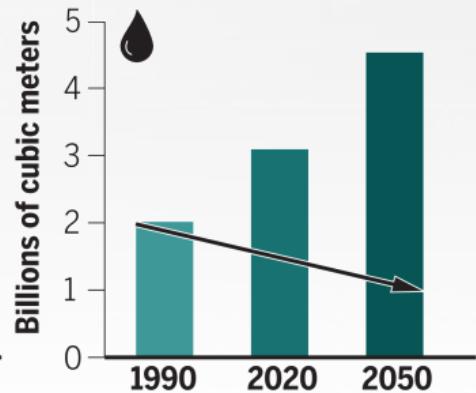
B



C

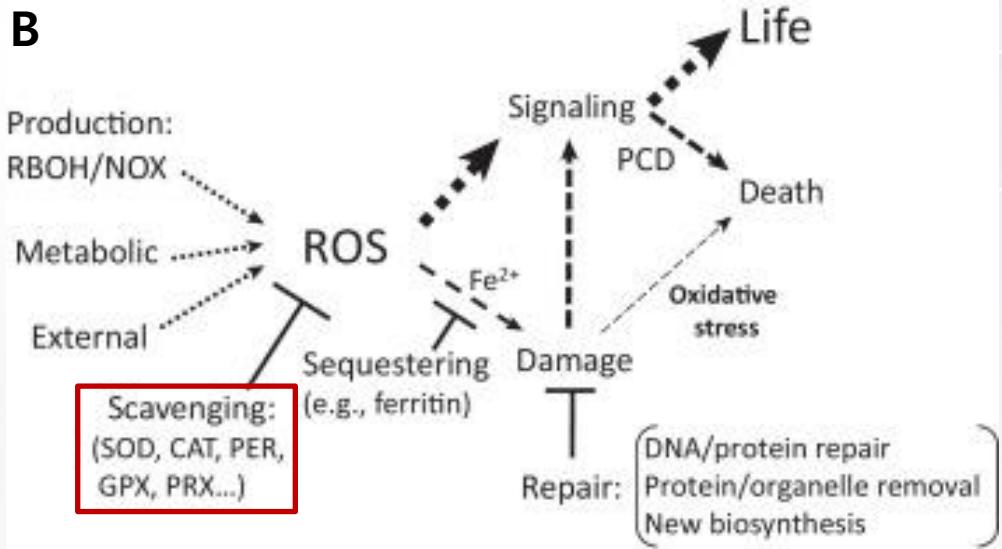
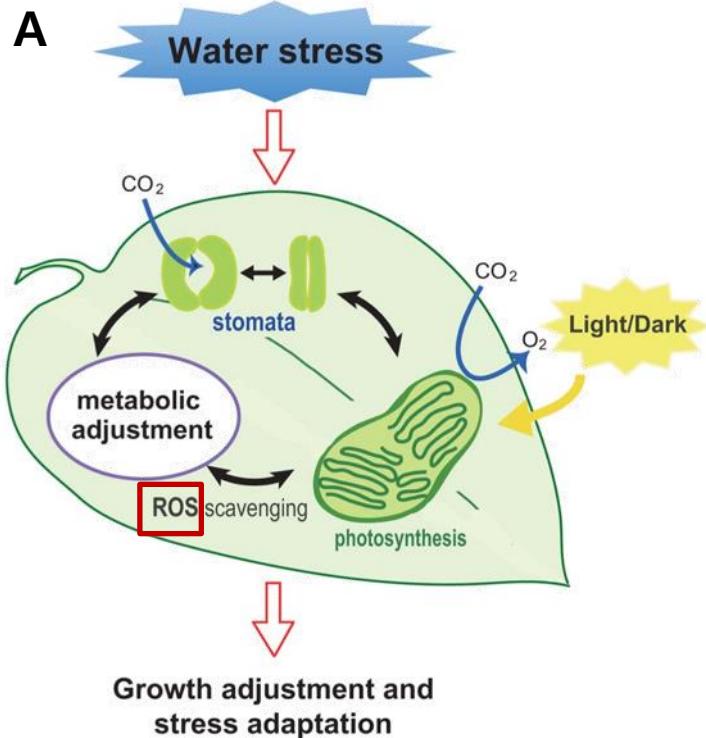


D



(Aditi Gupta, Andrés Rico-Medina & Ana I. Caño-Delgado, 2020, Science)

Background



ROS: reactive oxygen species

SOD: superoxide dismutase

POD: peroxidase

CAT: catalase

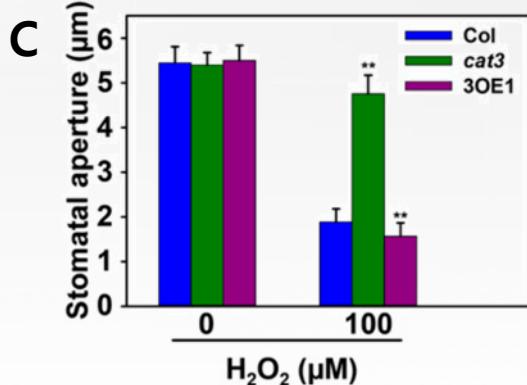
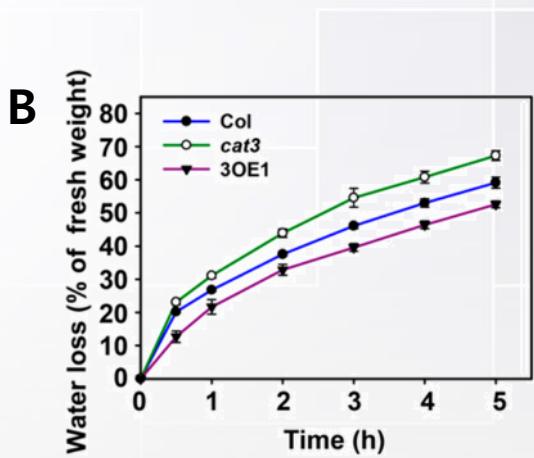
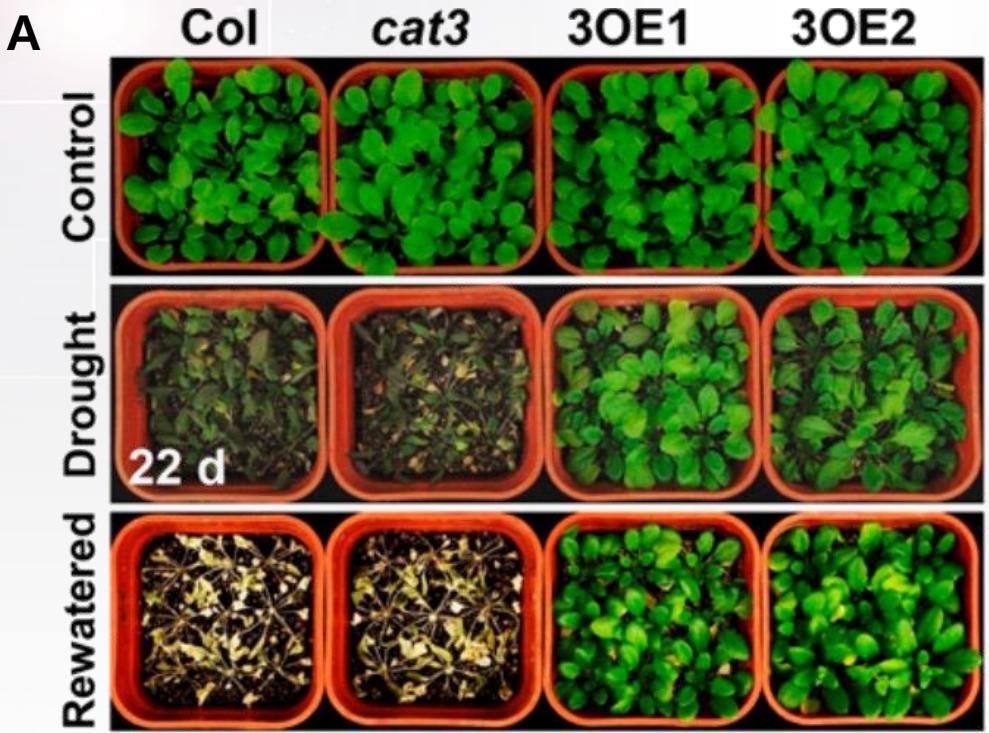
APX: ascorbate peroxidase

GPX: glutathione peroxidase

PER: peroxidase

PRX: peroxiredoxin

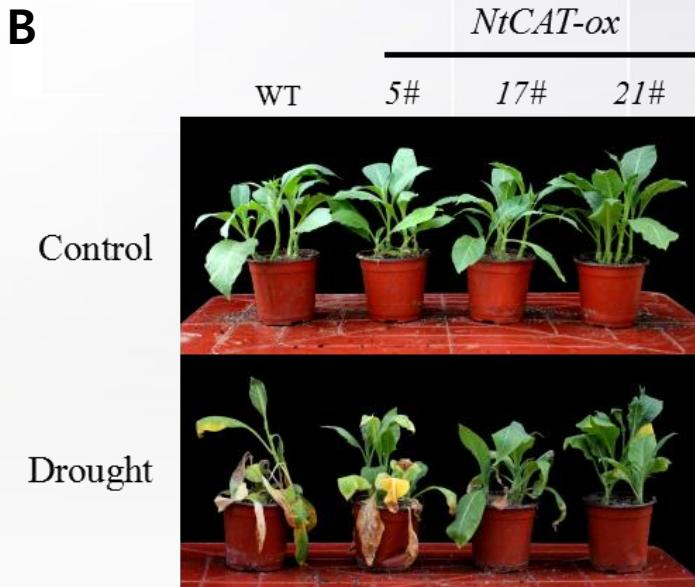
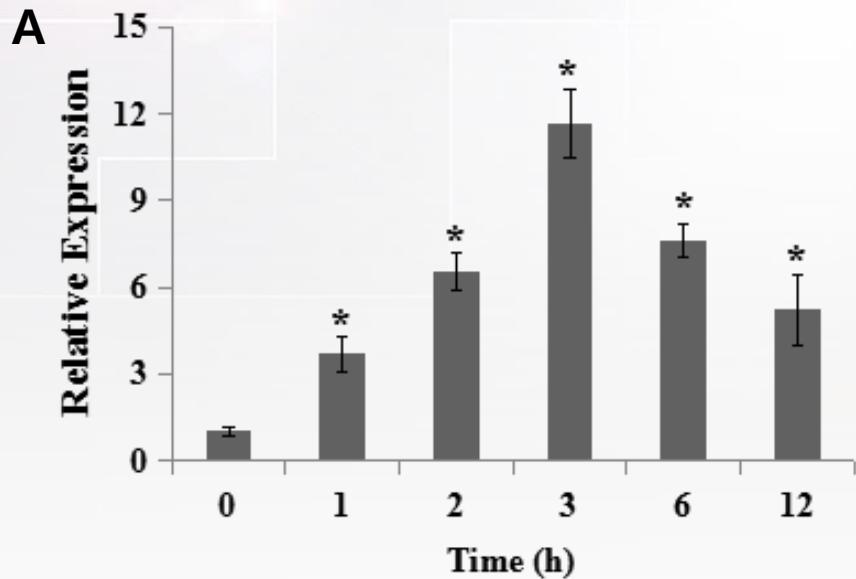
Background



(Jun-Jie Zou et al., 2015, Plant Cell)

Results

NtCAT improved drought tolerance in tobacco



Results

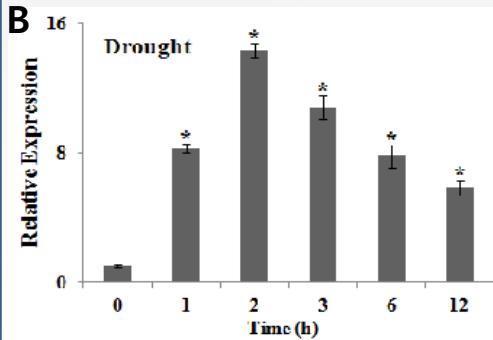
NtERF172 improved drought tolerance in tobacco

A

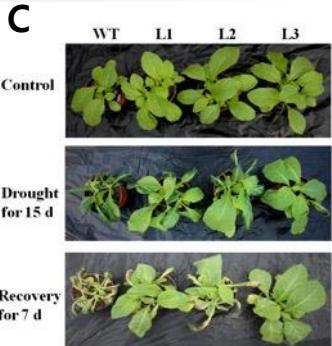
pABAi	AD	-AbA	+AbA ¹⁵⁰
pABAi-P1	AD-NtERF172		
pABAi-P1-mP1	AD-NtERF172		
p53-AbAi	pGADT7-Rec/p53		

P1: A sequence on the promoter of *NtCAT* that can be related to drought stress.

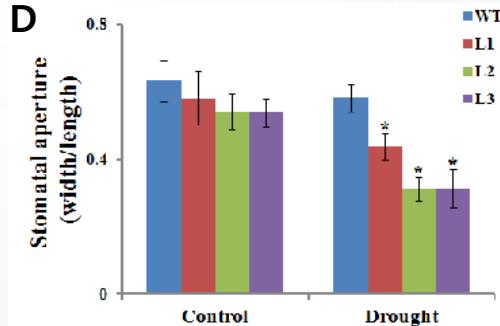
B



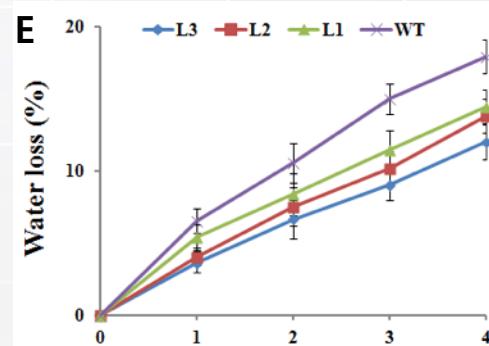
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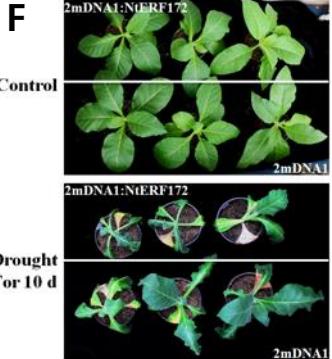
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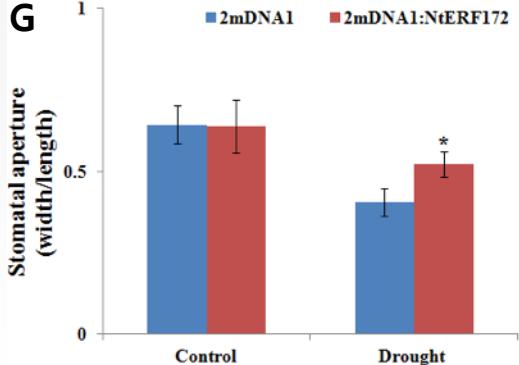
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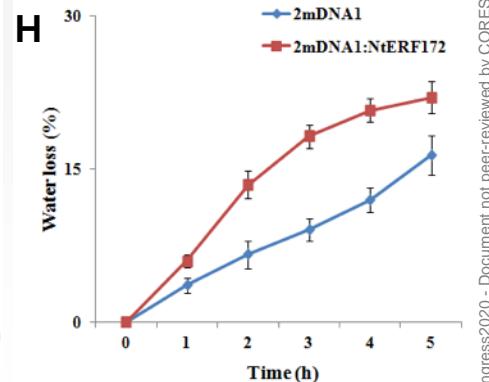
F



G



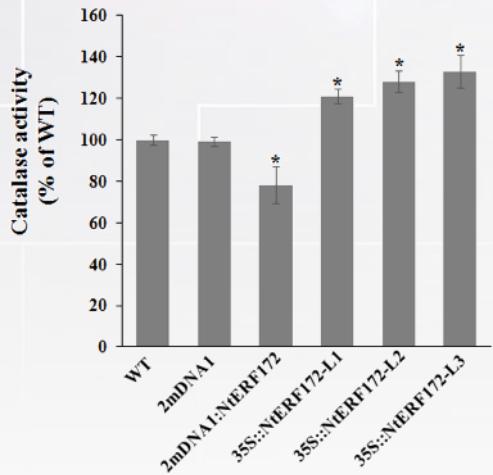
H



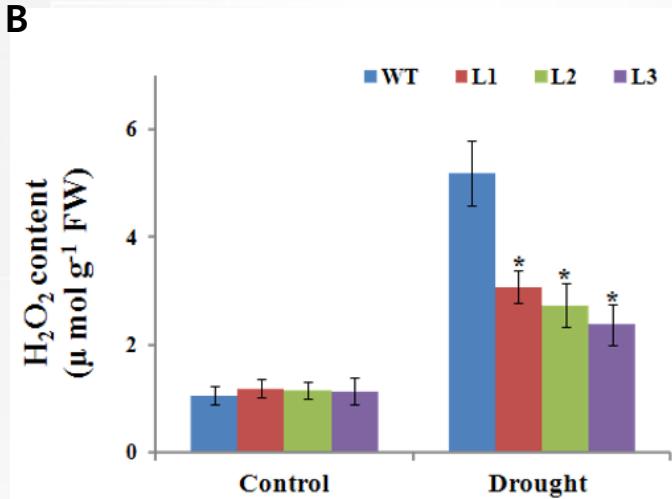
Results

NtERF172 regulates H₂O₂ accumulation and NtCAT enzyme activities

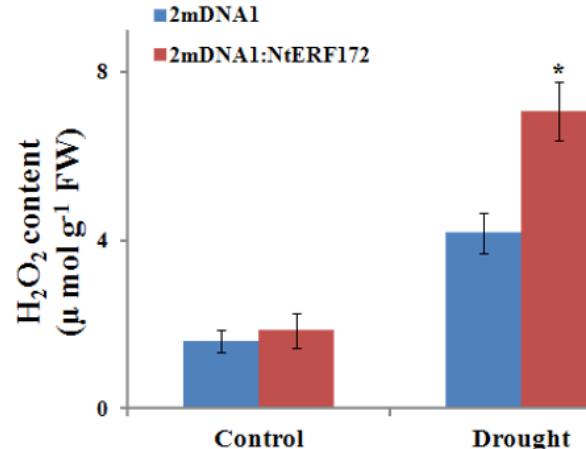
A



B



C



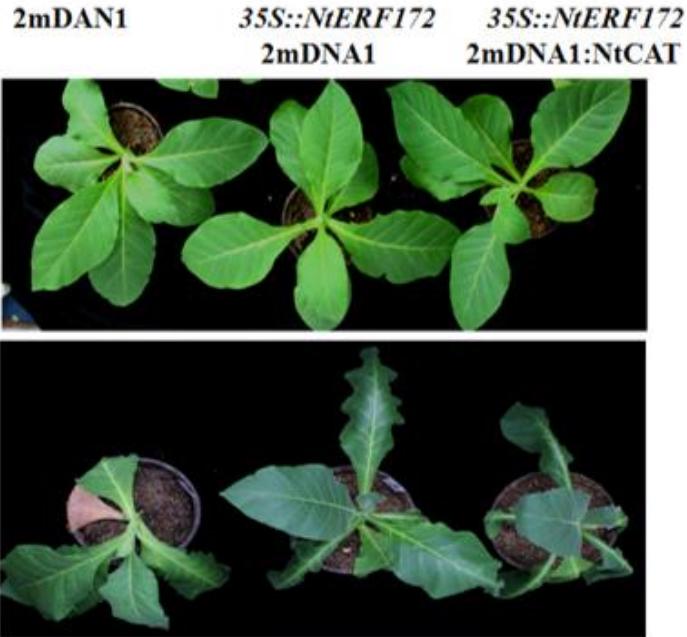
35S::NtERF172-L1, L2 and L3: ERF172 overexpression lines.

2mDNA1:NtERF172: ERF172-silenced line

Results

NtERF172 improves plant drought tolerance through NtCAT

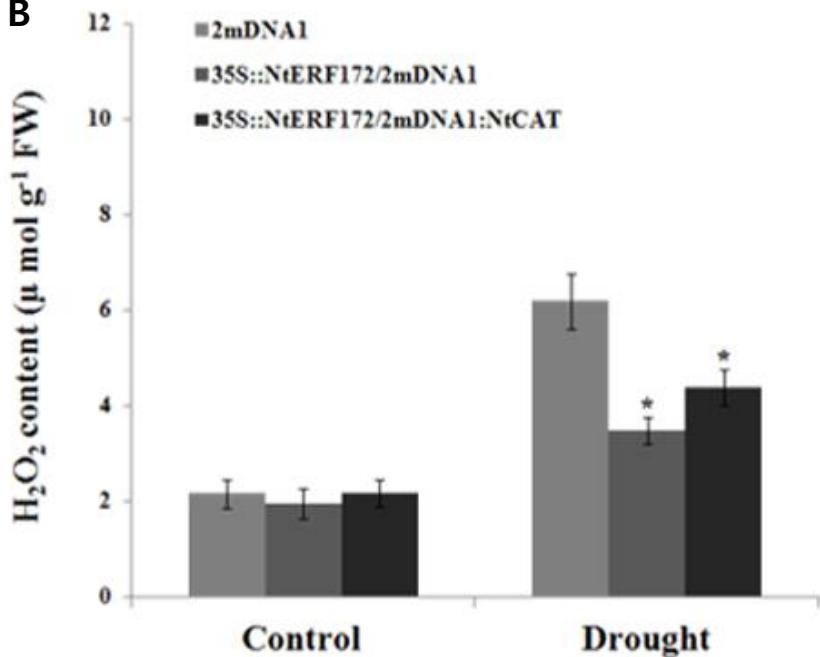
A



Control

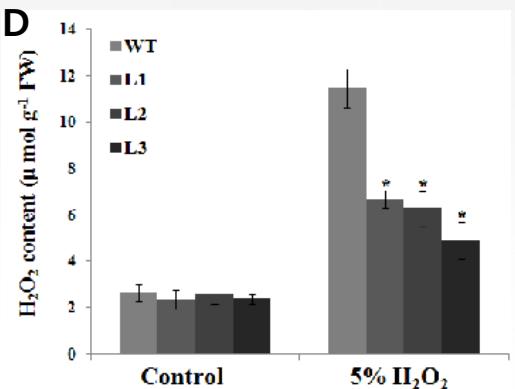
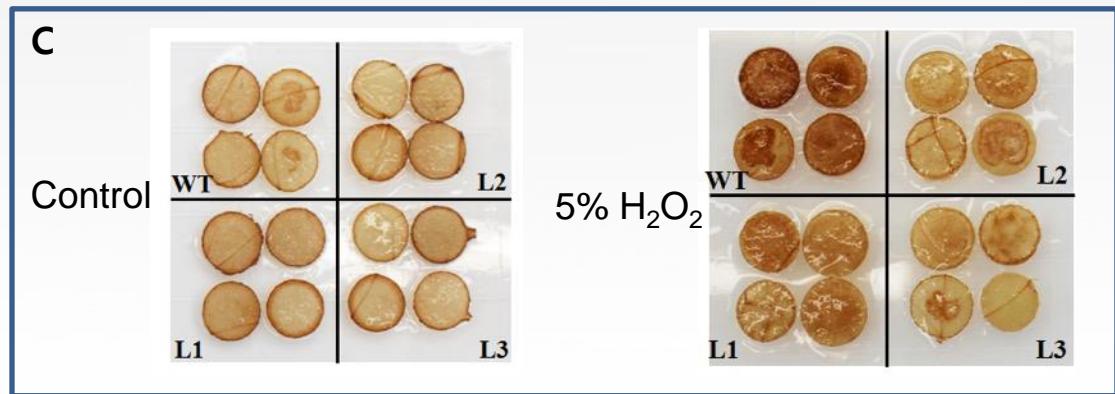
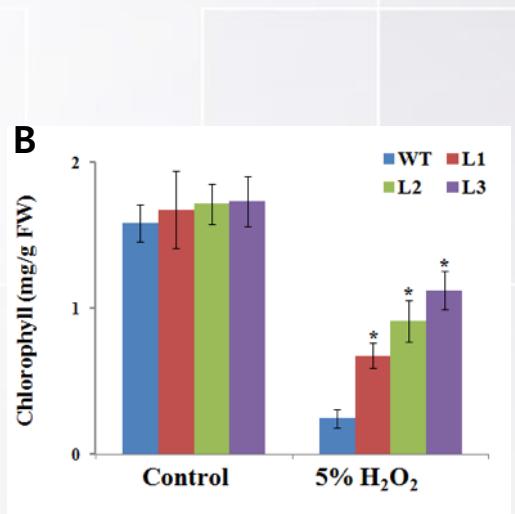
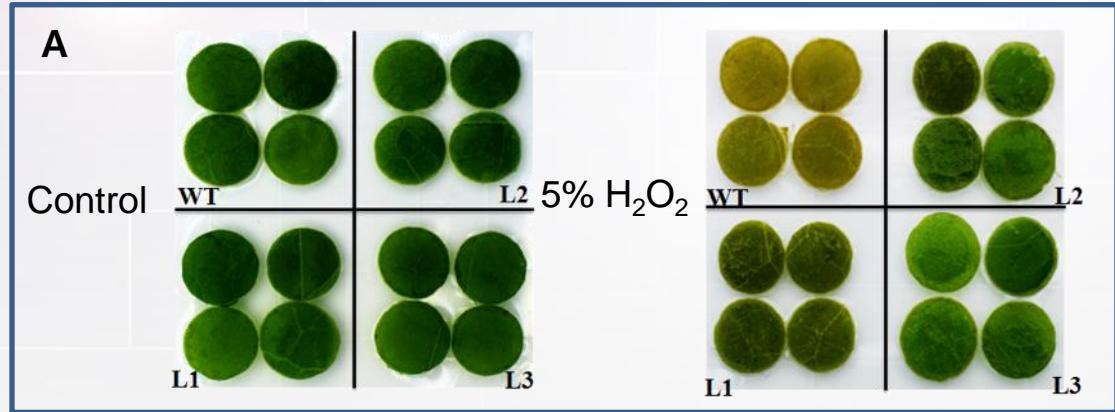
Drought

B

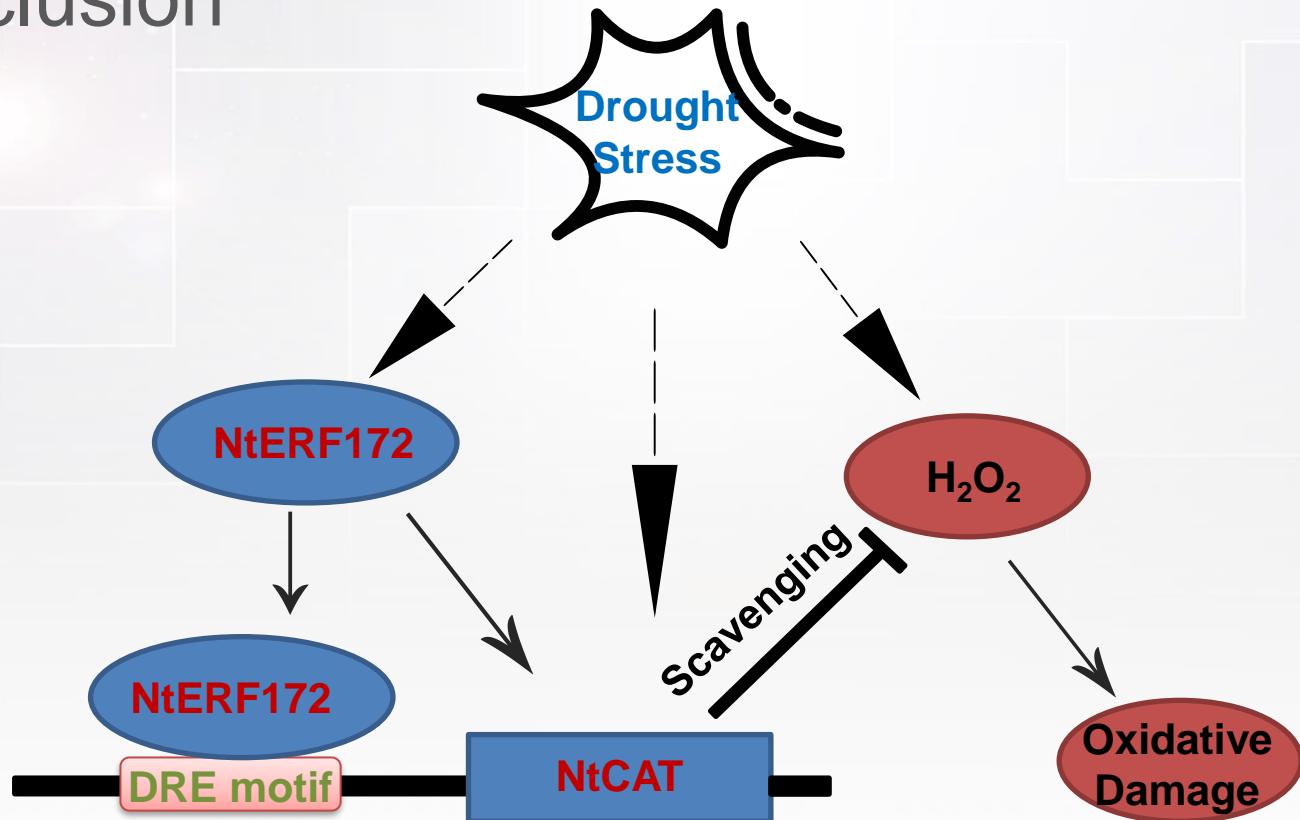


Results

NtERF172 enhanced oxidative stress tolerance



Conclusion



Thanks for listening

E-mail: shen-ly@163.com