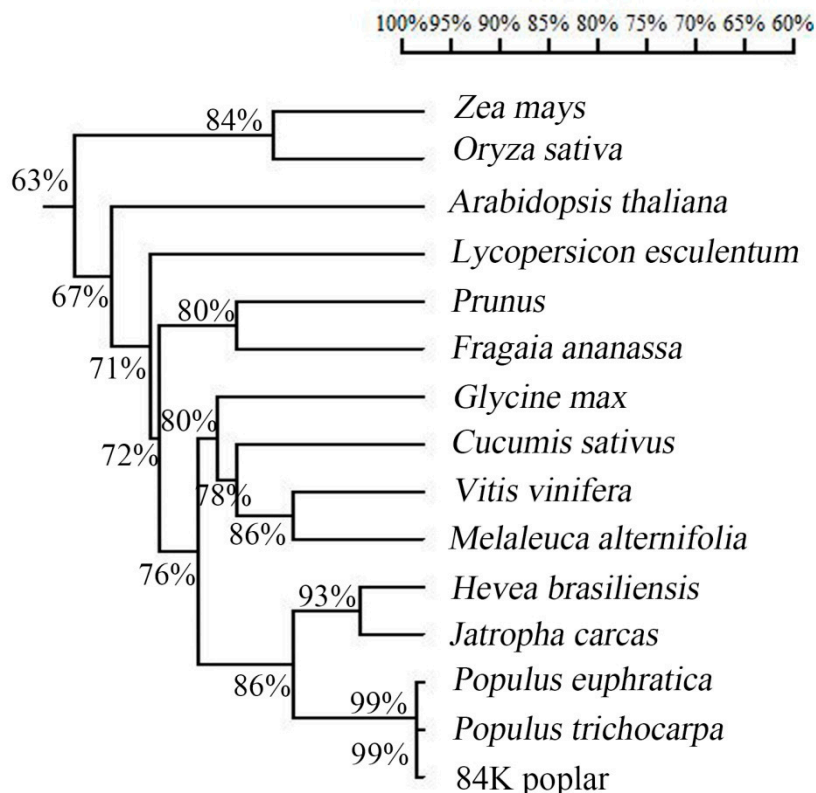
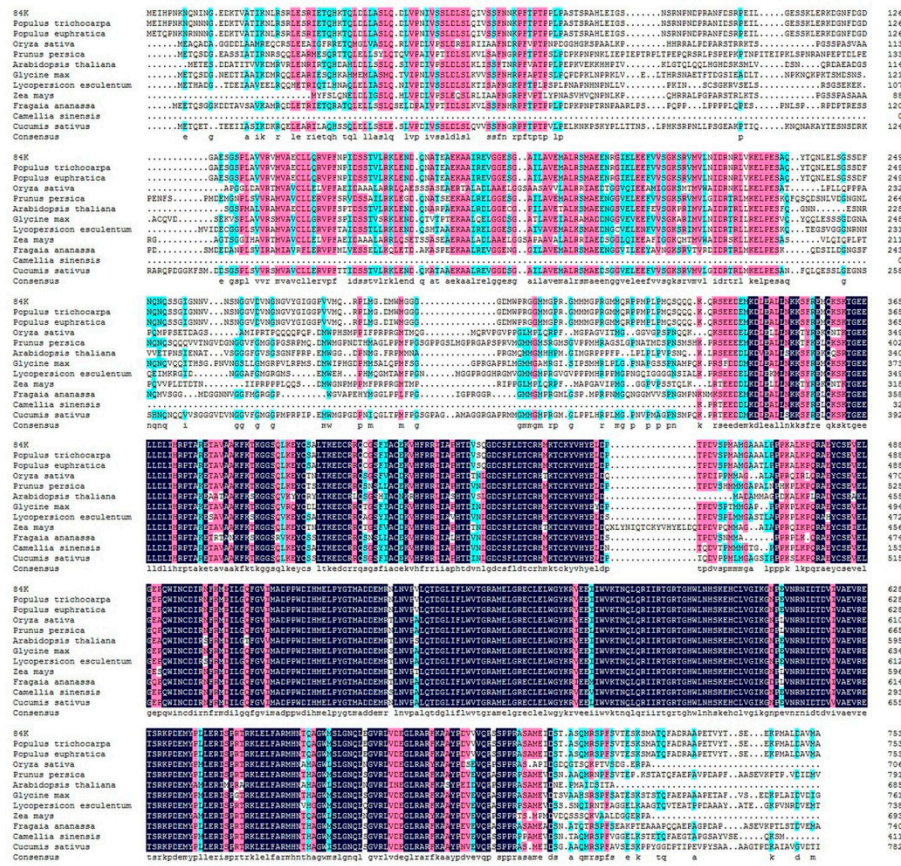


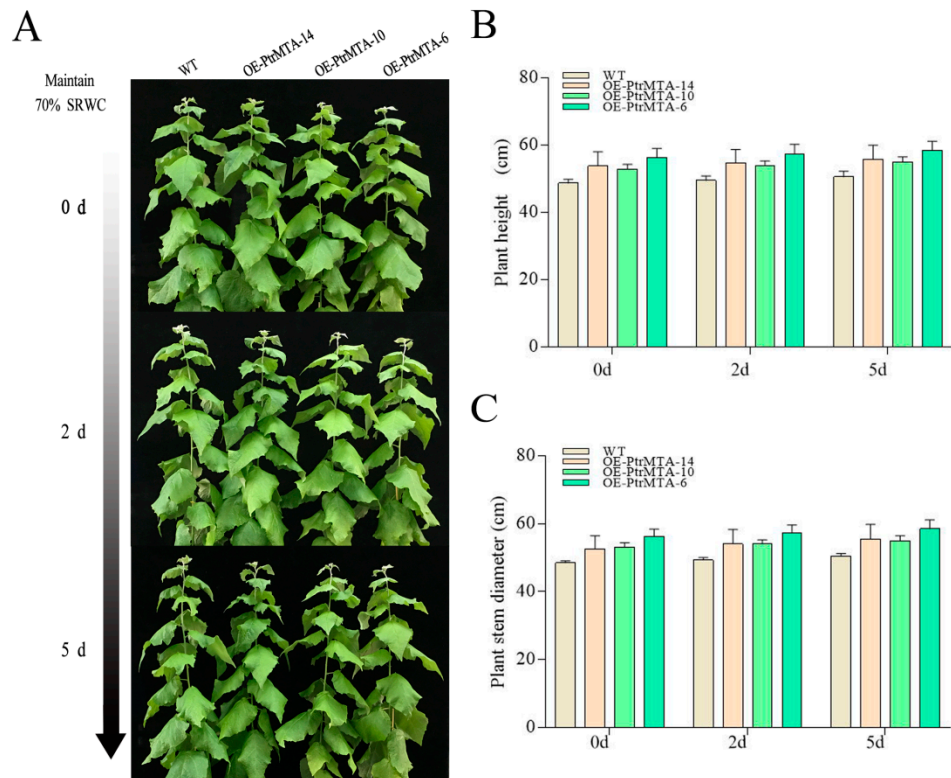
## Supplementary Materials



**Figure S1. Phylogenetic tree of different MTA protein family members and amino acid sequence alignment of PtrMTA.** Phylogenetic analysis of the PtrMTA homologs from *Zea mays*, *Oryza sativa*, *Arabidopsis thaliana*, *Lycopersicon esculentum*, *Prunus persica*, *Fragaria ananassa*, *Glycine max*, *Vitis vinifera*, *Melaleuca alternifolia*, *Hevea brasiliensis*, *Jatropha carcas*, *Populus euphratica*, *Populus trichocarpa* and 84K poplar.



**Figure S2. MTA was highly conserved among various plant species.** Alignment of amino acid sequences of PtrMTA and its orthologs from various plant species. Sequences of MTA orthologs from 84K poplar, *Populus trichocarpa*, *Populus euphratica*, *Oryza sativa*, *Prunus persica*, *Glycine max*, *Lycopersicon esculentum*, *Fragaria ananassa*, *Arabidopsis*, *Zea mays*, *Camellia sinensis* and *Cucumis sativus* were obtained from the NCBI and Phytosome databases. Conserved residues are shown in black.



**Figure S3. Growth status of WT and *PtrMTA*-overexpressing plants under normal conditions.** (A) Phenotypic analysis under normal conditions. (B) Plant height statistics of wild type (WT) and *PtrMTA*-overexpressing plants under normal conditions. (C) Plant stem diameter statistics of wild type (WT) and *PtrMTA*-overexpressing plants under normal conditions. Error bars are means  $\pm$  SE (n = 4). All asterisks denote significant differences: \*\* $p < 0.01$ .

**Table S1. Statistics on the number of trichomes in the 20 areas (1500  $\mu\text{m}$  \* 1000  $\mu\text{m}$ ) of leaves in WT and transgenic plants.**

<b>Sample</b>	<b>Statistical data</b>	<b>Average</b>
WT	08.08.10.05.11.08 07.09.10.10.05.07.07.09.10.08.12.14.10.14	9
PtrMTA-14	12.14.11.14.14.14.11.10.10.14.16.15.13.12.13.15.12.12.11.10	13
PtrMTA-10	15.16.18.12.13.14.16.15.15.16.18.12.14.19.20.17.10.12.14.16	14
PtrMTA-6	28.30.24.20.23.20.24.25.31.18.20.18.16.21.23.19.16.32.28.25	23

**Table S2. Analysis of the *PtrMTA* promoter functional components.**

Sequence	Organism	Element number	Position from ATG	Function
ACGTG	<i>Arabidopsis thaliana</i>	2	-1377, -1396	cis-acting element involved in the abscisic acid responsiveness
ATAGAAATC AA	<i>Glycine max</i>	1	-87	binding site of AT-rich DNA binding protein (ATBP-1)
AACGAC	<i>Brassica oleracea</i>	1	-532	auxin-responsive element
CCATCTTTT	<i>Nicotiana tabacum</i>	2	-433, -2600	cis-acting element involved in salicylic acid responsiveness
GGTTAA	<i>Arabidopsis thaliana</i>	4	-45, -201, -1809, -1966	light responsive element
CAACTG	<i>Arabidopsis thaliana</i>	1	-2641	MYB binding site involved in drought-inducibility
AACCTAA	<i>Petroselinum crispum</i>	3	-354, -400, -2544	MYB binding site involved in light responsiveness
ATTAAT	<i>Petroselinum crispum</i>	3	-458, -1923, -2066	part of a conserved DNA module involved in light responsiveness
GTTTCTTAC	<i>Nicotiana tabacum</i>	1	-1220	cis-acting element involved in defense and stress responsiveness
CCCCCG	<i>Zea mays</i>	1	-2365	enhancer-like element involved in anoxic specific inducibility
TACGTG	<i>Arabidopsis thaliana</i>	1	-1376	cis-acting regulatory element involved in light responsiveness

**Table S3. Primers used for PCR analysis.**

<b>Primer name</b>	<b>Primer sequence</b>
F-cloning PtrMTA	5' GGGGTACCATGGAGATTCATCCAAACAAGAAC 3'
R-cloning PtrMTA	5' CGGGATCCTCAGCCAGCCATAACAGCATCTAA 3'
F-qRT-PtrMTA	5' TGCTATGGAGCTTGGACGTG 3'
R-qRT-PtrMTA	5' AGGGTACATCTCGTCTGGCT 3'
F-18S	5' CGAAGACGATCAGATACCGTC 3'
R-18S	5' TTTTCATAAGGTGCTGGCGG 3'
F-PtrMTA-GFP	5' GGGGTACCATGGAGATTCATCCAAACAAGAAC 3'
R-PtrMTA-GFP	5' CGGGATCCGCCAGCCATAACAGCATCTAA 3'
F-PtrFIP37-mCherry	5' CGGGGTACCATGGCATCGCACAACCATCT 3'
R-PtrFIP37-mCherry	5' GCTCTAGAGTTGACCTCAGCTTCCTTC 3'
F-identification PtrMTA	5' AATTGAGACTTTTCAACAAAGGG 3'
R-identification PtrMTA	5' TCAAAGCCATTTCCACCG 3'

**Table S4. GenBank IDs of the PtrMTA homologues proteins**

<b>Species</b>	<b>GenBank IDs</b>
<i>Populus trichocarpa</i>	7477828
<i>Zea mays</i>	100281493
<i>Oryza sativa</i>	4330284
<i>Arabidopsis thaliana</i>	826670
<i>Lycopersicon esculentum</i>	543972
<i>Prunus persica</i>	110758914
<i>Fragaria ananassa</i>	101294523
<i>Glycine max</i>	100788519
<i>Vitis vinifera</i>	100256414
<i>Melaleuca alternifolia</i>	114279743
<i>Hevea brasiliensis</i>	100669519
<i>Jatropha caracas</i>	105645610
<i>Populus euphratica</i>	105127270