Supplementary data

Table S1: Reaction system.

Synthesis of cDNA: Dilute the concentration of RNA that passes the quality test to 50 ng/ul and reverse transcription into cDNA using an RT-RNA kit. The specific experimental steps:

Reaction system

Component	Volume
Total RNA	20μl
oligo （dT）$_{18}$（100 μM）	2μl
Nuclease-free water	Up to 24μl

Mix gently, centrifuge briefly, incubate at 65 °C for 5 min, cool on ice, centrifuge, and then place on ice to cool.

Add the following components in turn

Component	Volume
5X Reaction Buffer	8μl
RiboLock™ RNA（20u/ul）	2μl
dNTP Mix（10mM）	4μl
RevertAid™ M-MuLV（200u/μl）	2μl
Total	40μl

Reaction conditions: Mix gently, incubate at 42 °C for 60 min, heat at 70 °C for 5 min, and terminate the reaction.

Table S2: The specific reaction conditions.

In order to verify the expression characteristics of TCP gene at different stages of development of the two leaf types, the fluorescence quantitative test kit (Beijing Quanji Jin), with reverse transcription cDNA as the template and related primers, was used to perform fluorescence quantitative PCR experiments, with the Actin gene as the endogenous reference group (http://icg.big.ac.cn/index.php/Jatropha_curcas).

The specific reaction conditions

Component	Volume
cDNA	100 of
qTCP 3-F/ qTCP 3-R(10 μM)	0.4 μl / 0.4 μl
qPCR Mix（10 mM）	10 μl
Nuclease-free Water	Up to 20 μl

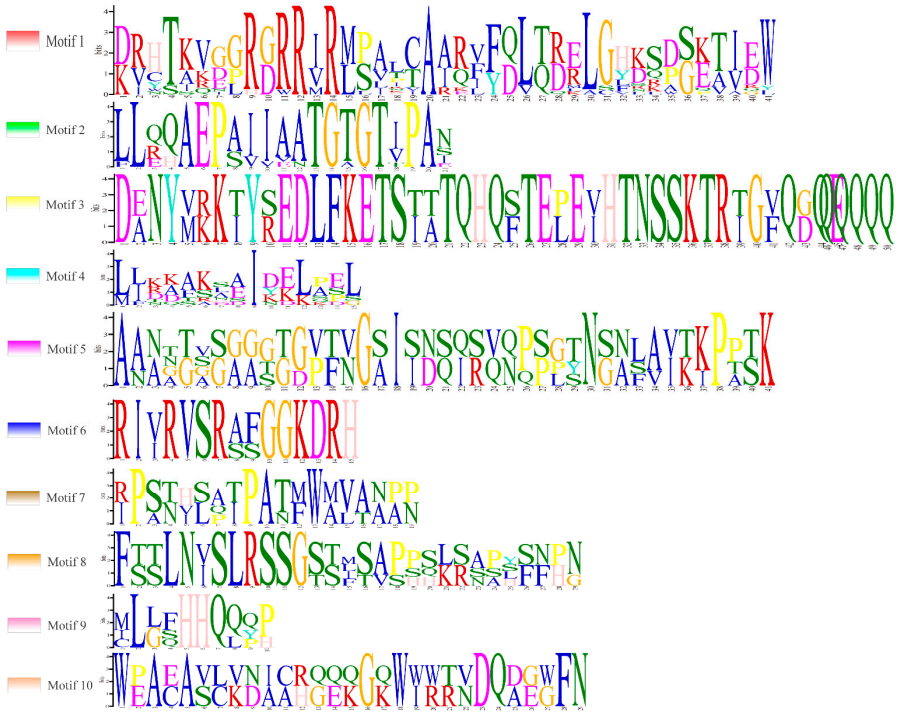
Reaction conditions: 94 °C prenaturation for 30s; 94 °C denaturation for 5s, X °C annealing for 10 s, 72 °C extension for 15s and 45 cycles; X is the annealing temperature; see table primer table. The rest of the programs are default. Perform statistical analysis of quantitative data using Excel.

Table S3: Primer design.

Primer design

Primer Name	Primer Sequence （5′ - 3′）
qTCP1-F	GGCAATTATAGCAAACACCGG
qTCP1-R	CATGAAACGAATGAGGTGCG
qTCP2-F	GTCCAATTCTGATAGTGCAGCA
qTCP2-R	ATGACGGTCTTTAGACGGCG
qTCP3-F	TGGTCAGCATTTAGGAATCCG
qTCP3-R	CAACCCGAGCCTATCTTGTAG
qTCP4-F	GTTCCAGCACGAATTCAAGG
qTCP4-R	GAATCAGAGGAAGCAGAGGAC
qTCP5-F	TCTAAAGACCGTCATAGCAAGG
qTCP5-R	CGTTTTCGTTTGGTGCTATCAG
qTCP6-F	GGTAGGTGGCAATTTAGGGAG
qTCP6-R	GGCAAGTCAAAACCAGGAAAC
qTCP7-F	CCGCAATTCCCTTTCTTGATG
qTCP7-R	CTTGCTGTTCTTGCTGATGC
qTCP8-F	CGAGTCTCCAGATTGTTCCAG
qTCP8-R	AGTTGGAAAACCCTAGCTGC
qTCP10-F	CACAAATCAGACGGCGAAAC
qTCP10-R	AATGGTGAGAAGCGGAGAAG
qTCP12-F	TGGAGGTGGAGGAGATTCAG
qTCP12-R	CTCCACTTCCACTGCCAAGAT
qTCP13-F	CCCCTTCAGTCCAGTTTCATG
qTCP13-R	GTGCTGGAATGCTAAAACCTG
qTCP14-F	GGACAACCGATGCACATTTGA
qTCP14-R	GCCGGCGAAGAAGAATGAGT
qTCP16-F	GATCTCAGAATCAGCGGCAG
qTCP16-R	CGGCGTAAATCCTAGAGGAGT
qTCP17-F	GTGGGTTCCATCTCCAACCA
qTCP17-R	ATAACGCCAGCATACGGATTC
qTCP18-F	CAGCAACTGGGTTTAGGAGT
qTCP18-R	CTGCACTATCACTACCTTGT
Actin-F	CTCCTCTCAACCCCAAAGCCAA
Actin-R	CACCAGAATCCAGCACGATACCA

Figure S4: Motif of amino acid sequence diagram.



Motif of amino acid sequence diagram.

S5:

Orthologous（Jc-Rc and Jc-At）gene pairs

Jc-Rc		At-Jc
*JcTCP*17/*RcTCP*7	*JcTCP*13/*RcTCP*10	*AtTCP*5/*JcTCP*3
*JcTCP*18/*RcTCP*6	J*cTCP*13/*RcTCP*3	*AtTCP*17/*JcTCP*3
*JcTCP*18/*RcTCP*7	*JcTCP*13/*RcTCP*4	*AtTC*P4/*JcTCP*4
*JcTCP*11/*RcTCP*12	*JcTCP*4/*RcTCP*10	*AtTCP*3/*JcTCP*4
*JcTCP*11/*RcTCP*16	*JcTCP*4/*RcTCP*3	*AtTCP*11/*JcTCP*6
*JcTCP*11/*RcTCP*17	*JcTCP*4/*RcTCP*4	*AtTCP*20/*JcTCP*6
*JcTCP*7/*RcTCP*12	*JcTCP*10/*RcTCP*14	*AtTCP*12/*JcTCP*7
*JcTCP*7/*RcTCP*16	*JcTCP*10/*RcTCP*15	*AtTCP*15/*JcTCP*8
*JcTCP*7/*RcTCP*17	*JcTCP*8/*RcTCP*14	*AtTCP*15/*JcTCP*8
*JcTCP*15/*RcPCF*1	*JcTCP*8/*RcTCP*15	*AtTCP*19/*JcTCP*9
*JcTCP*15/*RcTCP*11	*JcTCP*14/*RcTCP*13	*AtTCP*14/*JcTCP*10
*JcTCP*15/*RcTCP*18	*JcTCP*14/*RcTCP*5	*AtTCP*15/*JcTCP*8
*JcTCP*15/*RcTCP*20	*JcTCP*2/*RcTCP*21	*AtTCP*18/*JcTCP*11
*JcTCP*15/*RcTCP*8	*JcTCP*5/*RcTCP*21	*AtTCP*24/*JcTCP*12
*JcTCP*6/*RcPCF*1	*JcTCP*12/*RcTCP*2	*AtTCP*2/*JcTCP*12
*JcTCP*6/*RcTCP*11	*JcTCP*1/*RcTCP*6	*AtTCP*10/*JcTCP*13
*JcTCP*6/*RcTCP*18	*JcTCP*1/*RcTCP*7	*AtTCP*13/*JcTCP*14
*JcTCP*6/*RcTCP*20	*JcTCP*17*RcTCP*6	*AtTCP*6/*JcTCP*15

S6:

The TCP gene registry numbers of the various species (Jatropha, Arabidop-sis thaliana, rice, and Ricinus communis)

Name	Gene registry numbers	Name	Gene registry numbers	Name	Gene registry numbers	Name	Gene registry numbers
JcTCP1	KDP42414.1	AtTCP1	QHH26576.1	OsPCF1	XP_015633587.1	RcPCF1	XP_002529441.1
JcTCP2	XP_012070794.2	AtTCP2	NP_001078407.1	OsPCF2	NP_001390616.1	RcTCP2	XP_002519642.1
JcTCP3	XP_012080397.1	AtTCP3	NP_001322492	OsPCF3	XP_015616519.1	RcTCP3	XP_002525139.1
JcTCP4	XP_012074215.1	AtTCP4	NP_001189896.1	OsTCP4	XP_015626531.1	RcTCP4	XP_002525138.1
JcTCP5	KDP32396.1	AtTCP5	NP_200905.1	OsPCF5	NP_001396351.1	RcTCP5	EEF47747.1
JcTCP6	XP_012067277.1	AtTCP6	NP_181237.1	OsPCF6	NP_001405680.1	RcTCP6	EEF35539.1
JcTCP7	NP_001306857.1	AtTCP7	NP_197719.1	OSPCF7	XP_015639296.1	RcTCP7	XP_015580758.1
JcTCP8	XP_012080249.1	AtTCP8	NP_176107	OsPCF8	XP_025877606.1	RcTCP8	EEF32966.1
JcTCP9	KDP22344.1	AtTCP9	NP_182092.1	OsTCP7	XP_015624938.1	RcTCP9	EEF50444.1
JcTCP10	XP_012067620.1	AtTCP10	NP_565712.1	OsTCP8	XP_015627477.1	RcTCP10	EEF42810.1
JcTCP11	KDP20083.1	AtTCP11	NP_198919.1	OsTCP9	XP_015630237.1	RcTCP11	EEF42924.1
JcTCP12	NP_001306852.1	AtTCP12	NP_177047.2	OsTCP10	XP_015644886.1	RcTCP12	XP_002524400.3
JcTCP13	XP_012079039.1	AtTCP13	NP_850501.1	OsTB1	BAC99350.1	RcTCP13	XP_002527630.1
JcTCP14	XP_037492253.1	AtTCP14	NP_190346.2	OsTCP12	XP_015611514.1	RcTCP14	XP_002522405.1
JcTCP15	KDP29142.1	AtTCP15	NP_564973.1	OsTCP13	XP_015637968.1	RcTCP15	EEF52165.1
JcTCP16	XP_012066537.1	AtTCP16	NP_190101.1	OsTCP14	XP_015624016.1	RcTCP16	XP_002521201.1
JcTCP17	KDP46925.1	AtTCP17	NP_001318505.1	OsTCP15	XP_015641757.1	RcTCP17	XP_002511978.2
JcTCP18	XP_012084808.1	AtTCP18	NP_001319582.1	OsTCP16	XP_015612634.1	RcTCP18	XP_015570980.1
		AtTCP19	NP_200004.1	OsTCP17	XP_015619107.1	RcTCP19	XP_002510862.1
		AtTCP20	NP_001327814.1	OsTCP18	XP_015618822.1	RcTCP20	XP_002514876.1
		AtTCP21	NP_196450.1	OsTCP19	XP_015629543.1	RcTCP21	EEF33503.1
		AtTCP22	NP_177346.1	OsTCP20	XP_015621786.1		
		AtTCP23	NP_174789	OsTCP21	XP_015635777.1		
		AtTCP24	NP_564351				

S7:

The heatmaps generated using the *Jctropha Curcas* L. transcriptome data

name	Roots	Stems	Leave	Female flowers	Male flowers	IF	GF	MF I	MF II
JcTCP 1	7.83032	17.97275	18.74635	12.61335	2.884235	7.90933	3.423815	2.21985	1.87558
JcTCP 2	41.57795	146.4399	45.1383	70.6787	10.67542	43.6823	18.75017	5.42843	5.386155
JcTCP 3	0	0	3.059995	0.572574	4.230025	0.145107	0.205612	0	0
JcTCP 4	0	5.049395	128.5979	11.27667	6.31853	20.01898	9.08716	3.70819	2.394015
JcTCP 5	17.4169	44.79215	25.39675	30.1143	2.82304	16.05245	11.14155	3.168525	2.60149
JcTCP 6	11.9018	16.62405	5.061695	5.48829	3.851175	11.03285	8.100175	10.5147	10.86475
JcTCP 7	0	0	0.02258	0	0	0	0	0	0
JcTCP 8	1.57294	73.88475	16.36055	23.5011	1.425875	3.484435	0.438299	0.027146	0.024286
JcTCP 9	3.22576	2.43017	0.941475	7.303065	1.002343	2.40948	2.84349	4.87434	3.41072
JcTCP 10	1.16502	33.4728	11.9344	12.1701	0.245476	4.368585	0.225596	0.019804	0.011988
JcTCP 11	0.949931	0.39851	0.084605	0.289335	0.022878	0.010708	0.419199	0	0
JcTCP 12	45.6545	3.434295	158.7094	35.70725	20.38628	87.73775	75.54005	1.352403	0.134312
JcTCP 13	1.73885	2.361915	13.61545	7.088275	6.4815	0.476076	0.146417	0.408117	0.108519
JcTCP 14	0	0.03082	17.3931	1.375085	0.219322	0.035107	0.025086	0.239247	0.046252
JcTCP 15	3.149705	2.932705	2.55993	10.88925	1.04037	13.38865	6.91978	12.2472	3.31662
JcTCP 16	1.8993	3.645195	12.42955	2.15123	5.131415	5.23446	2.72365	4.89622	5.17421
JcTCP 17	0	0	0	0	0	0	0	0	0
JcTCP 18	14.23515	17.09525	12.27225	3.9728	4.31972	41.767	36.13135	2.290915	2.87586