

## Supplemental information

**Supplementary Table S1**

**Primer sequences used for quantitative Real-Time PCR**

Gene name	Primer	Primer sequences (5'-3')
<i>Solyc01g102300</i>	Forward	GGGATGGGATTTGGGTTGGGTATG
	Reverse	GATAAGCGGTGGAAGCAGGAATAGG
<i>Solyc08g076970</i>	Forward	GGGAAC TTGTGGTAACTGGAAAGGG
	Reverse	AGCGGGTTTGAATTTCTTTGAGTGC
<i>Solyc11g069430</i>	Forward	GGTGGTGTTAATGTCATGGCAGGAG
	Reverse	TTAGGGTCGGTGGCGGAGAAG
<i>Solyc11g007690</i>	Forward	TGCCTTGAATCGGGAATGTCTGTG
	Reverse	TAGTTCAGGACCACCAGTGTCTAGC
<i>Solyc06g071000</i>	Forward	GGTCCTGTCCTTACGGTTACAAC TG
	Reverse	AGGCTTCACCACCAAAGAGCAATC
<i>Solyc02g093720</i>	Forward	ATGTAGAGGAGGCTGAGAGGTATGC
	Reverse	CGGGGTTTTGTTGATTGGCTTG TTC
<i>Solyc10g081840</i>	Forward	CTTACTTAAACCGCGCAAGCCATTC
	Reverse	CCATCCGTCTTCCTCGTGTTC AAG
<i>Solyc08g044260</i>	Forward	TGGCTTCAA AACCAGGGATTCTCAC
	Reverse	TCCCACAAATGGTGCCAAAACAATG
<i>Solyc02g083130</i>	Forward	CTCAAGCCACCAGAAGAGCGTATAG
	Reverse	GGCAACTTCCGATTCTCCGTCATC
<i>actin</i>	Forward	TGGTCGGAATGGGACAGAAG
	Reverse	CTCAGTCAGGAGAACAGGGT

**Supplementary Table S2****The hub genes in the pink module, saddlebrown module and darkgrey module**

<b>Gene name</b>	<b>Description</b>	<b>Degree</b>
<b>Pink module</b>		
Solyc08g080010.2	Subtilisin-like protease	20
Solyc11g005340.2	Plastid-lipid associated protein PAP / fibrillin family protein	17
Solyc05g009930.3	Hydroxyproline-rich glycoprotein family protein	16
Solyc12g008830.2	GATA-like transcription factor	14
Solyc07g039195.1	Dystrophin-1	10
Solyc08g078780.2	LOW QUALITY:Plant/MNJ7-17 protein, putative	10
<b>Saddlebrown module</b>		
Solyc05g050220.3	TAF-3	19
Solyc01g098490.3	Sugar facilitator protein 1	17
Solyc10g008040.3	Late embryogenesis abundant protein-like	15
Solyc06g005460.1	LOW QUALITY:Pectinesterase inhibitor	13
Solyc01g080410.3	Methionine sulfoxide reductase, putative	12
Solyc11g006290.2	3-oxo-5- $\alpha$ -steroid 4-dehydrogenase family protein	12
Solyc06g068130.3	Tetratricopeptide repeat (TPR)-like superfamily protein	12
Solyc03g097510.1	Small auxin up-regulated RNA38	11
Solyc03g005840.2	Outward rectifying potassium channel protein	11
Solyc07g054060.3	Phospho-N-acetylmuramoyl-pentapeptide-transferase, putative	10
<b>Darkgrey module</b>		
Solyc06g083390.3	RPM1-interacting protein 4	45
Solyc02g071110.3	Purine permease	31
Solyc11g013130.2	Cysteine-rich/transmembrane domain protein A	28
Solyc06g066170.3	Isoflavone reductase homolog	19
Solyc02g081610.2	Phosphatidylinositol N-acetylglucosaminyltransferase	19
Solyc06g063140.3	26S protease regulatory subunit, putative	18
Solyc10g084770.2	Protein kinase	17
Solyc03g119930.1	Sulfate transporter, putative	16
Solyc03g115230.3	Solanum lycopersicum heat shock protein	16
Solyc11g009000.2	Alpha/beta-Hydrolases superfamily protein	12
Solyc12g036650.2	translocase subunit seca	11

Supplementary Table S3

## Amino acid sequence information on sulfate transporters

Species	Proposed SULTRs protein	Locus tag
<i>Solanum lycopersicum</i>	SULTR	Solyc03g119930.1
<i>Arabidopsis thaliana</i>	AtSULTR3;1	AT3G51895
<i>Arabidopsis thaliana</i>	AtSULTR3;2	AT4G02700
<i>Arabidopsis thaliana</i>	AtSULTR3;3	AT1G23090
<i>Arabidopsis thaliana</i>	AtSULTR3;4	AT3G15990
<i>Arabidopsis thaliana</i>	AtSULTR3;5	AT5G19600
<i>Arabidopsis thaliana</i>	AtSULTR4;1	AT5G13550
<i>Arabidopsis thaliana</i>	AtSULTR4;2	AT3G12520
<i>Zea mays</i>	ZmSULTR2;1	ZEAMMB73_Zm00001d028164
<i>Zea mays</i>	ZmSULTR3;3	ZEAMMB73_Zm00001d002038
<i>Zea mays</i>	ZmSULTR3;4	ZEAMMB73_Zm00001d000204
<i>Zea mays</i>	ZmSULTR3;5	ZEAMMB73_Zm00001d043614
<i>Oryza sativa</i>	OsSULTR1;1	AF493790
<i>Oryza sativa</i>	OsSULTR1;2	ABF94450
<i>Oryza sativa</i>	OsSULTR1;3	AF493790
<i>Oryza sativa</i>	OsSULTR2;1	AAN59769
<i>Oryza sativa</i>	OsSULTR2;2	AAN59770
<i>Oryza sativa</i>	OSSULTR3;1	NP_921514
<i>Oryza sativa</i>	OsSULTR3;2	AAN06871
<i>Oryza sativa</i>	OsSULTR3;3	AK104831
<i>Oryza sativa</i>	OsSULTR3;4	BAD68396
<i>Oryza sativa</i>	OsSULTR4;1	AF493793