

Supplemental Table 3

A. Metabolite profiles of flowers

	<u>Col-0 wild type</u>	<u>tha1-1/tha1-1</u>	<u>tha1-2/tha1-2</u>	<u>THA2-1/tha2-1</u>	<u>THA2-2/tha2-2</u>
glutamine	1.00 ± 0.16	1.42 ± 0.08	1.07 ± 0.04	2.04 ± 0.16	1.36 ± 0.07
asparagine	1.00 ± 0.18	0.88 ± 0.18	0.90 ± 0.08	1.24 ± 0.12	1.13 ± 0.07
aspartic	1.00 ± 0.04	0.92 ± 0.04	0.99 ± 0.03	1.01 ± 0.02	0.96 ± 0.03
threonine	1.00 ± 0.06	1.08 ± 0.03	0.99 ± 0.03	0.95 ± 0.08	0.84 ± 0.07
serine	1.00 ± 0.06	0.68 ± 0.03	0.83 ± 0.03	0.93 ± 0.06	0.78 ± 0.08
glycine	1.00 ± 0.05	0.65 ± 0.04	1.14 ± 0.02	0.71 ± 0.06	0.66 ± 0.09
isoleucine	1.00 ± 0.05	0.83 ± 0.08	0.73 ± 0.10	2.55 ± 0.10	3.11 ± 0.05
valine	1.00 ± 0.09	0.90 ± 0.04	0.92 ± 0.06	1.67 ± 0.03	1.73 ± 0.06
maltose	1.00 ± 0.02	0.87 ± 0.02	0.88 ± 0.03	0.84 ± 0.02	0.77 ± 0.04
trehalose	1.00 ± 0.04	0.70 ± 0.07	1.18 ± 0.05	0.52 ± 0.07	0.53 ± 0.03
sucrose	1.00 ± 0.06	0.62 ± 0.03	0.65 ± 0.05	0.48 ± 0.01	0.53 ± 0.04
glucose	1.00 ± 0.04	1.25 ± 0.05	0.92 ± 0.11	1.03 ± 0.02	0.98 ± 0.06
galactose	1.00 ± 0.04	0.83 ± 0.02	1.00 ± 0.07	0.79 ± 0.03	0.71 ± 0.02
mannose	1.00 ± 0.04	0.67 ± 0.02	1.05 ± 0.04	0.50 ± 0.04	0.39 ± 0.04
fructose	1.00 ± 0.02	0.73 ± 0.03	0.97 ± 0.01	0.56 ± 0.01	0.50 ± 0.03
arabinose	1.00 ± 0.02	0.72 ± 0.03	0.98 ± 0.04	0.82 ± 0.04	0.93 ± 0.05
xylose	1.00 ± 0.02	0.78 ± 0.04	1.03 ± 0.03	0.18 ± 0.03	0.17 ± 0.03
glucose-6-P	1.00 ± 0.07	0.85 ± 0.05	1.09 ± 0.06	0.75 ± 0.09	0.53 ± 0.06
fructose-6-P	1.00 ± 0.08	0.84 ± 0.04	1.01 ± 0.06	0.78 ± 0.09	0.58 ± 0.06
isocitrate	1.00 ± 0.06	0.17 ± 0.14	0.18 ± 0.07	0.24 ± 0.16	0.16 ± 0.19
citrate	1.00 ± 0.03	0.73 ± 0.04	0.84 ± 0.03	0.85 ± 0.03	0.83 ± 0.02
shikimate	1.00 ± 0.03	0.97 ± 0.04	0.81 ± 0.04	0.37 ± 0.08	0.42 ± 0.03
a-kt-glutaric acid	1.00 ± 0.04	1.14 ± 0.04	1.38 ± 0.04	0.72 ± 0.02	0.86 ± 0.04
glycerate	1.00 ± 0.05	0.79 ± 0.07	0.79 ± 0.05	0.42 ± 0.07	0.38 ± 0.02
succinate	1.00 ± 0.03	0.89 ± 0.04	0.89 ± 0.02	0.85 ± 0.02	0.97 ± 0.02
malate	1.00 ± 0.03	1.00 ± 0.03	0.89 ± 0.03	0.79 ± 0.01	0.75 ± 0.02
phosphoric acid	1.00 ± 0.13	1.50 ± 0.02	1.45 ± 0.04	1.67 ± 0.06	1.54 ± 0.03

B. Metabolite profiles of leaves

	<u>Col-0 wild type</u>	<u>tha1-1/tha1-1</u>	<u>tha1-2/tha1-2</u>	<u>THA2-1/tha2-1</u>	<u>THA2-2/tha2-2</u>
threonine	1.00 ± 0.20	0.71 ± 0.22	0.98 ± 0.13	0.67 ± 0.13	0.99 ± 0.07
serine	1.00 ± 0.08	0.46 ± 0.10	0.92 ± 0.07	0.69 ± 0.05	0.88 ± 0.10
glycine	1.00 ± 0.31	0.41 ± 0.12	0.83 ± 0.23	0.42 ± 0.09	0.42 ± 0.11
isoleucine	1.00 ± 0.08	0.78 ± 0.09	0.88 ± 0.02	1.15 ± 0.13	1.43 ± 0.05
leucine	1.00 ± 0.08	1.32 ± 0.08	1.90 ± 0.09	1.80 ± 0.17	2.09 ± 0.13
valine	1.00 ± 0.04	0.93 ± 0.06	0.95 ± 0.07	1.21 ± 0.11	1.98 ± 0.04
isomaltose	1.00 ± 0.11	1.07 ± 0.17	1.27 ± 0.09	1.67 ± 0.26	2.25 ± 0.23
sucrose	1.00 ± 0.24	0.55 ± 0.10	1.06 ± 0.07	0.64 ± 0.04	0.82 ± 0.00
glucose	1.00 ± 0.33	2.38 ± 0.19	6.19 ± 0.15	0.58 ± 0.18	0.53 ± 0.16
galactose	1.00 ± 0.24	0.99 ± 0.15	3.33 ± 0.14	0.93 ± 0.19	1.34 ± 0.24
mannose	1.00 ± 0.19	1.24 ± 0.09	3.27 ± 0.15	0.67 ± 0.20	0.95 ± 0.24
fructose	1.00 ± 0.16	1.31 ± 0.12	3.16 ± 0.13	0.90 ± 0.19	0.83 ± 0.22
18:0 fatty acid	1.00 ± 0.09	0.71 ± 0.12	0.46 ± 0.05	0.42 ± 0.12	0.50 ± 0.12
16:0 fatty acid	1.00 ± 0.08	0.72 ± 0.06	0.70 ± 0.11	0.59 ± 0.10	0.73 ± 0.08
dehydroascorbate	1.00 ± 0.08	0.93 ± 0.09	1.54 ± 0.08	1.08 ± 0.15	1.55 ± 0.09
citrate	1.00 ± 0.29	0.47 ± 0.17	1.17 ± 0.14	2.20 ± 0.28	0.82 ± 0.18
malate	1.00 ± 0.06	0.98 ± 0.08	1.27 ± 0.03	0.80 ± 0.09	1.11 ± 0.07

C. Metabolite profiles of stems

	<u>Col-0 wild type</u>	<u>tha1-1/tha1-1</u>	<u>tha1-2/tha1-2</u>	<u>THA2-1/tha2-1</u>	<u>THA2-2/tha2-2</u>
glutamate	1.00 ± 0.31	1.33 ± 0.44	1.98 ± 0.29	1.07 ± 0.43	0.83 ± 0.41
aspartate	1.00 ± 0.08	0.55 ± 0.08	0.73 ± 0.08	0.54 ± 0.11	0.47 ± 0.13
threonine	1.00 ± 0.11	1.01 ± 0.14	0.76 ± 0.24	1.31 ± 0.22	1.26 ± 0.21
serine	1.00 ± 0.21	0.85 ± 0.09	0.61 ± 0.05	1.95 ± 0.27	1.39 ± 0.17
glycine	1.00 ± 0.12	0.62 ± 0.10	0.78 ± 0.08	0.69 ± 0.10	0.67 ± 0.07
isoleucine	1.00 ± 0.11	0.89 ± 0.07	0.89 ± 0.05	1.65 ± 0.11	1.09 ± 0.03
valine	1.00 ± 0.05	0.42 ± 0.13	0.39 ± 0.05	0.47 ± 0.11	0.42 ± 0.07
raffinose	1.00 ± 0.16	1.34 ± 0.41	1.56 ± 0.27	2.93 ± 0.36	1.13 ± 0.35
isomaltose	1.00 ± 0.13	1.46 ± 0.19	2.53 ± 0.20	1.63 ± 0.20	1.21 ± 0.15
trehalose	1.00 ± 0.25	0.86 ± 0.21	2.77 ± 0.04	1.51 ± 0.06	1.93 ± 0.09
sucrose	1.00 ± 0.09	0.50 ± 0.12	0.65 ± 0.06	0.73 ± 0.15	0.91 ± 0.10
glucose	1.00 ± 0.05	0.63 ± 0.04	0.87 ± 0.10	0.67 ± 0.08	0.58 ± 0.05
galactose	1.00 ± 0.07	1.04 ± 0.04	1.58 ± 0.04	1.05 ± 0.15	1.07 ± 0.07
mannose	1.00 ± 0.19	0.35 ± 0.11	0.69 ± 0.05	0.68 ± 0.14	0.47 ± 0.09
fructose	1.00 ± 0.15	0.39 ± 0.22	0.34 ± 0.05	0.34 ± 0.09	0.56 ± 0.16
18:0 fatty acid	1.00 ± 0.07	1.89 ± 0.06	2.09 ± 0.06	2.01 ± 0.04	1.15 ± 0.06
16:0 fatty acid	1.00 ± 0.06	1.63 ± 0.05	1.81 ± 0.06	1.77 ± 0.02	0.73 ± 0.13
myo-inositol	1.00 ± 0.08	1.09 ± 0.16	1.39 ± 0.06	0.70 ± 0.13	0.75 ± 0.15
gluconic acid	1.00 ± 0.24	0.67 ± 0.06	0.93 ± 0.11	0.55 ± 0.08	0.66 ± 0.08
isocitrate	1.00 ± 0.27	0.62 ± 0.27	0.81 ± 0.32	0.76 ± 0.22	1.22 ± 0.32
citrate	1.00 ± 0.08	0.50 ± 0.16	0.90 ± 0.09	0.86 ± 0.20	1.21 ± 0.14
phosphoric acid	1.00 ± 0.05	1.21 ± 0.09	1.78 ± 0.08	1.38 ± 0.05	1.62 ± 0.11

D Metabolite profiles of siliques

	<u>Col-0 wild type</u>	<u>tha1-1/tha1-1</u>	<u>tha1-2/tha1-2</u>	<u>THA2-1/tha2-1</u>	<u>THA2-2/tha2-2</u>
glutamate	1.00 ± 0.19	0.61 ± 0.30	1.18 ± 0.15	0.88 ± 0.19	1.14 ± 0.13
tyrosine	1.00 ± 0.04	0.95 ± 0.12	1.13 ± 0.02	4.79 ± 0.03	5.47 ± 0.04
asparagine	1.00 ± 0.26	1.29 ± 0.57	1.32 ± 0.28	0.92 ± 0.29	1.15 ± 0.26
aspartic	1.00 ± 0.05	1.07 ± 0.05	1.28 ± 0.02	1.01 ± 0.07	1.28 ± 0.02
threonine	1.00 ± 0.09	1.13 ± 0.13	1.42 ± 0.07	0.91 ± 0.10	0.88 ± 0.06
serine	1.00 ± 0.09	0.68 ± 0.07	1.31 ± 0.04	0.87 ± 0.11	0.82 ± 0.05
glycine	1.00 ± 0.07	1.28 ± 0.06	1.10 ± 0.04	0.58 ± 0.05	0.69 ± 0.02
isoleucine	1.00 ± 0.04	1.05 ± 0.32	0.91 ± 0.08	5.07 ± 0.06	5.39 ± 0.02
leucine	1.00 ± 0.02	0.92 ± 0.11	1.05 ± 0.04	7.15 ± 0.07	7.89 ± 0.04
valine	1.00 ± 0.03	0.92 ± 0.16	0.89 ± 0.03	3.02 ± 0.04	3.40 ± 0.03
isomaltose	1.00 ± 0.04	0.67 ± 0.03	3.33 ± 0.10	0.57 ± 0.10	0.52 ± 0.07
maltose	1.00 ± 0.04	0.85 ± 0.02	1.14 ± 0.03	0.82 ± 0.04	0.81 ± 0.02
trehalose	1.00 ± 0.04	0.71 ± 0.03	1.46 ± 0.08	0.62 ± 0.02	0.93 ± 0.05
sucrose	1.00 ± 0.06	0.73 ± 0.03	0.63 ± 0.03	0.20 ± 0.07	0.40 ± 0.09
glucose	1.00 ± 0.04	0.90 ± 0.03	1.23 ± 0.02	0.46 ± 0.07	0.48 ± 0.08
galactose	1.00 ± 0.04	1.01 ± 0.11	1.17 ± 0.03	0.54 ± 0.07	0.51 ± 0.06
mannose	1.00 ± 0.11	1.02 ± 0.10	1.21 ± 0.13	0.59 ± 0.11	0.58 ± 0.10
fructose	1.00 ± 0.03	0.92 ± 0.02	1.18 ± 0.02	0.56 ± 0.03	0.65 ± 0.02
rhamnose	1.00 ± 0.14	0.57 ± 0.08	1.42 ± 0.08	2.28 ± 0.12	2.26 ± 0.13
xylose	1.00 ± 0.07	0.92 ± 0.07	1.39 ± 0.03	0.82 ± 0.07	0.71 ± 0.05
18:0 fatty acid	1.00 ± 0.12	1.03 ± 0.15	1.18 ± 0.03	0.90 ± 0.06	0.74 ± 0.03
16:0 fatty acid	1.00 ± 0.10	1.11 ± 0.15	1.39 ± 0.02	0.94 ± 0.05	0.87 ± 0.02

myo-inositol	1.00 ± 0.07	1.58 ± 0.06	1.52 ± 0.01	0.47 ± 0.06	0.46 ± 0.05
isocitrate	1.00 ± 0.34	0.54 ± 0.09	1.03 ± 0.08	1.12 ± 0.11	1.27 ± 0.00
citrate	1.00 ± 0.06	0.81 ± 0.05	0.60 ± 0.06	1.37 ± 0.10	1.76 ± 0.08
malate	1.00 ± 0.03	0.99 ± 0.02	1.00 ± 0.02	0.77 ± 0.07	0.90 ± 0.02
citramalate	1.00 ± 0.05	0.70 ± 0.03	0.67 ± 0.04	0.77 ± 0.11	0.94 ± 0.11
fumarate	1.00 ± 0.14	1.23 ± 0.02	1.15 ± 0.02	0.84 ± 0.04	0.88 ± 0.03
succinate	1.00 ± 0.02	0.97 ± 0.03	1.08 ± 0.02	0.80 ± 0.02	0.80 ± 0.02
phosphoric acid	1.00 ± 0.16	0.91 ± 0.08	2.08 ± 0.14	1.52 ± 0.24	2.59 ± 0.05

E. Metabolite profiles of seeds

	<u>Col-0 wild type</u>	<u><i>tha1-1/tha1-1</i></u>	<u><i>tha1-2/tha1-2</i></u>	<u><i>THA2-1/tha2-1</i></u>	<u><i>THA2-2/tha2-2</i></u>
threonine	1.00 ± 0.12	117.0 ± 0.21	51.87 ± 0.13	0.92 ± 0.10	0.68 ± 0.15
glycine	1.00 ± 0.08	2.56 ± 0.13	1.22 ± 0.16	0.86 ± 0.10	0.65 ± 0.14
isoleucine	1.00 ± 0.15	1.18 ± 0.06	0.64 ± 0.19	0.60 ± 0.24	0.43 ± 0.22
valine	1.00 ± 0.05	1.20 ± 0.03	0.43 ± 0.04	0.93 ± 0.10	0.24 ± 0.21
alanine	1.00 ± 0.15	1.29 ± 0.13	0.75 ± 0.09	2.16 ± 0.07	3.81 ± 0.13
melezitose	1.00 ± 0.02	1.44 ± 0.04	1.02 ± 0.03	1.77 ± 0.07	1.57 ± 0.08
raffinose	1.00 ± 0.06	1.11 ± 0.03	1.05 ± 0.03	1.74 ± 0.05	1.90 ± 0.04
isomaltose	1.00 ± 0.07	0.80 ± 0.04	0.82 ± 0.07	1.12 ± 0.07	0.95 ± 0.06
maltose	1.00 ± 0.16	1.44 ± 0.15	1.35 ± 0.11	1.97 ± 0.16	1.43 ± 0.15
sucrose	1.00 ± 0.06	1.01 ± 0.08	0.99 ± 0.15	1.02 ± 0.15	1.00 ± 0.05
mannitol	1.00 ± 0.04	2.02 ± 0.04	2.24 ± 0.02	0.97 ± 0.04	1.57 ± 0.05
glucose	1.00 ± 0.03	1.14 ± 0.05	1.19 ± 0.03	1.15 ± 0.04	1.39 ± 0.04
mannose	1.00 ± 0.05	1.65 ± 0.09	1.23 ± 0.11	1.16 ± 0.07	1.54 ± 0.07
fructose	1.00 ± 0.11	1.61 ± 0.04	1.01 ± 0.08	2.36 ± 0.09	1.79 ± 0.07
rhamnose	1.00 ± 0.03	0.68 ± 0.03	0.48 ± 0.02	0.71 ± 0.03	1.16 ± 0.04
arabinose	1.00 ± 0.05	0.97 ± 0.05	1.13 ± 0.06	1.16 ± 0.07	1.72 ± 0.07
gentiobiose	1.00 ± 0.10	1.07 ± 0.05	0.87 ± 0.03	1.42 ± 0.06	1.51 ± 0.11
18:0 fatty acid	1.00 ± 0.02	0.95 ± 0.02	0.91 ± 0.03	0.84 ± 0.03	0.79 ± 0.04
16:0 fatty acid	1.00 ± 0.01	0.98 ± 0.03	0.92 ± 0.04	0.89 ± 0.07	0.77 ± 0.09
gluconate	1.00 ± 0.06	2.06 ± 0.03	1.41 ± 0.02	2.06 ± 0.07	1.48 ± 0.03
isocitrate	1.00 ± 0.06	0.52 ± 0.03	0.62 ± 0.14	0.67 ± 0.03	0.33 ± 0.07
citrate	1.00 ± 0.04	0.56 ± 0.03	0.54 ± 0.04	0.79 ± 0.02	0.28 ± 0.04
malate	1.00 ± 0.08	0.91 ± 0.03	0.92 ± 0.13	0.88 ± 0.06	0.45 ± 0.06
fumarate	1.00 ± 0.20	0.88 ± 0.06	0.82 ± 0.11	1.14 ± 0.07	3.28 ± 0.06
phosphoric acid	1.00 ± 0.07	0.61 ± 0.05	0.42 ± 0.16	0.72 ± 0.05	0.52 ± 0.18

Supplemental Table 3. Metabolite profiles of flowers (A), leaves (B), stems (C), seeds (D) and siliques (E). The data were determined from samples of tissue harvested at the same developmental stage and have been normalized as described in the Materials and Methods. Values are presented as mean ± SE of measurements of six independent samples, with the metabolite content of wild-type Col-0 arbitrarily set to one. Data determined by Student's t-test to be significantly different from Col-0 wild type ($P < 0.01$) are set in bold type.