

**Additional file 7.** Metabolic profile of amino acids in leaves and roots of rice plants subjected to different nitrate treatments. Fold change (ratio of means) are shown. Colored cells (red=increase; green=decrease) indicate significant change for the indicated t-test ( $p < 0.05$ ).

Amino acid	Pathway	Leaf			Root		
		HN/LN	LN-HN / LN	HN-LN / HN	HN/LN	LN-HN / LN	HN-LN / HN
Alanine	Alanine and aspartate metabolism	1.16	0.75	1.42	1.42	0.92	1.08
Aspartate		6.67	1.38	0.73	2.99	1.69	1.03
Asparagine		8.08	0.88	6.92	10.29	1.27	1.28
Methionine	Cysteine, methionine, SAM, taurine metabolism	3.55	0.96	1.60	1.71	0.83	1.09
Glutamate	Glutamate metabolism	1.54	1.20	1.59	0.99	1.46	1.49
Glutamine		1.47	1.06	3.93	2.29	1.36	1.21
Glycine	Glycine, serine and threonine metabolism	1.93	0.97	2.12	1.53	1.30	1.30
Serine		1.43	0.96	2.52	1.45	0.89	1.34
Threonine		2.48	0.91	2.31	4.82	0.99	0.87
Histidine	Histidine metabolism	3.46	0.87	2.52	4.61	1.20	1.13
Lysine	Lysine metabolism	2.27	0.80	1.93	1.56	0.67	1.06
Phenylalanine	Phenylalanine and tyrosine metabolism	1.81	0.95	1.56	1.27	0.71	1.04
Tyrosine		2.56	0.99	1.95	1.31	0.78	1.01
Tryptophan	Tryptophan metabolism	0.86	0.72	1.88	0.15	0.76	9.74
Arginine	Urea cycle; arginine and proline metabolism	2.74	0.86	3.19	0.58	2.09	1.52
Proline		1.42	0.94	1.34	1.96	0.78	0.72
Isoleucine	Valine, leucine and isoleucine metabolism	3.00	0.92	2.17	2.99	0.85	0.82
Leucine		1.92	0.78	1.44	1.75	0.79	0.86
Valine		2.38	0.88	1.78	2.37	0.82	0.87