Leaf nitrate accumulation influences the photorespiration of rice (Oryza sativa L.) seedlings

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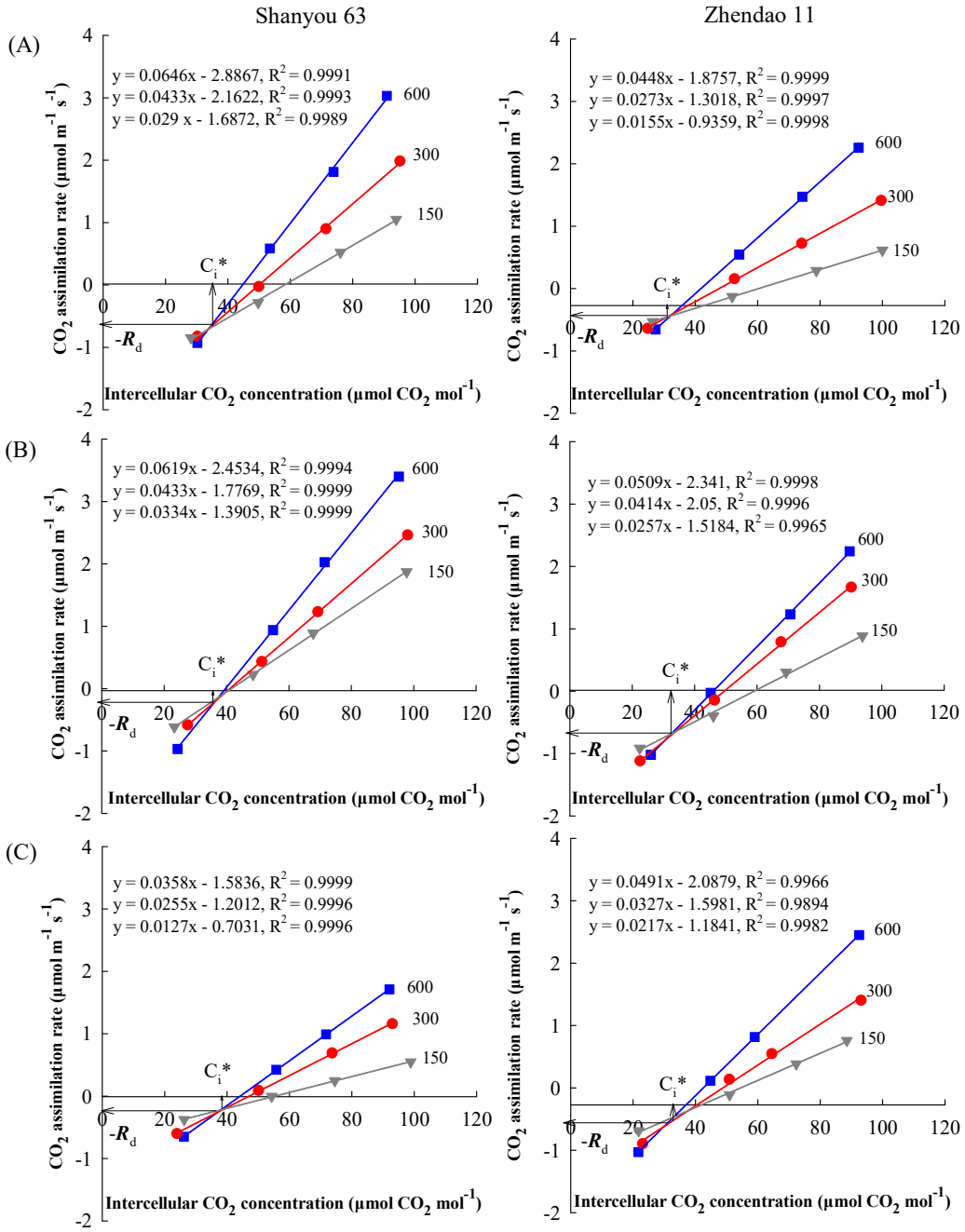
Supplementary data

Supplementary Table 1 Effect of different nitrogen (N) levels and forms on the height (cm), root length (cm), root and shoot biomass (g plant^{-1}) and root/shoot ratio of rice seedlings (‘Shanyou 63’ and ‘Zhendao 11’).

Cultivars	Treatments		Height (cm)	Root length (cm)	Root Biomass (g plant^{-1})	Shoot Biomass (g plant^{-1})	Root/Shoot
‘Shanyou 63’	NH_4^+	Low-N	84.5±4.5d	38.9±4.1bc	0.85±0.07b	2.35±0.55d	0.38±0.09a
		Medium-N	90.2±2.9bc	19.4±0.3f	0.71±0.07cd	3.42±0.36c	0.21±0.01bc
		High-N	94.9±3.7ab	20.0±1.3f	0.48±0.10e	4.07±0.53ab	0.11±0.02f
	NH_4^+/ NO_3^-	Low-N	83.7±3.3d	47.9±1.7a	0.85±0.05b	2.07±.17d	0.41±0.02a
		Medium-N	93.7±2.3ab	37.5±2.0cd	0.83±0.03bc	4.51±.16a	0.18±0.01bcd
		High-N	95.2±1.3ab	25.5±1.8e	0.66±0.10d	4.54±.15a	0.14±0.02ef
	NO_3^-	Low-N	85.7±5.7cd	40.9±2.0b	1.07±0.13a	2.57±0.28d	0.42±0.07a
		Medium-N	96.1±2.7a	36.7±1.7cd	0.92±0.08b	3.81±0.34bc	0.24±0.02b
		High-N	96.2±4.4a	34.5±2.5d	0.73±0.04cd	4.50±0.29a	0.16±0.00def
‘Zhendao 11’	NH_4^+	Low-N	64.8±1.6ab	35.5±1.7b	0.42±0.03a	1.49±0.05c	0.28±0.01a
		Medium-N	70.3±2.8a	26.6±1.4de	0.37±0.01b	1.83±0.22b	0.20±0.02c
		High-N	72.4±2.4a	25.6±1.1e	0.28±0.06cd	2.20±0.04a	0.13±0.02e
	NH_4^+/ NO_3^-	Low-N	63.5±1.5c	41.7±3.5a	0.37±0.02b	1.26±0.06d	0.29±0.02a
		Medium-N	65.4±1.2ab	35.6±1.7b	0.32±0.04bc	1.53±0.10c	0.21±0.03c
		High-N	71.5±0.7a	28.4±1.5d	0.24±0.03 d	2.05±0.28ab	0.12±0.02e
	NO_3^-	Low-N	63.4±1.5c	36.3±0.2 b	0.32±0.01bc	1.32±0.09cd	0.24±0.02b
		Medium-N	65.1±1.4ab	33.4±1.3bc	0.26±0.04d	1.50±0.18c	0.17±0.01d
		High-N	66.9±0.6b	31.6±1.8c	0.19±0.03e	1.93±.08b	0.10±0.02e
	Cultivars		**	ns	**	**	**
	N levels		**	**	**	**	**
	N forms		ns	**	**	ns	ns

Rice plants (‘Shanyou 63’ and ‘Zhendao 11’) were supplied with three N levels (10 mg L^{-1} N as low-N, 40 mg L^{-1} N as medium-N and 100 mg L^{-1} N as high-N) in the form of ammonium (NH_4^+), nitrate (NO_3^-) or the mixture of equal mol of NH_4^+ and NO_3^- (NH_4^+/ NO_3^-). The data are from Experiment 1 and the values represent the means ± SD of 4 biological replicates. ANOVA results are indicated; different letters indicate significant differences in the same genotype, $P < 0.05$. * and ** indicate significant difference at 0.05 and 0.01 probability levels, respectively; ns means non-significant difference.



Supplementary Fig. 1 The measurement of apparent CO_2 compensation point in the absence of respiration (Ci*) and day respiration rate ($\boldsymbol{R}_d$) in rice plants ('Shanyou 63' and 'Zhendao 11') under medium-N conditions (40 mg N L^{-1}) in the form of ammonium (NH_4^+, A), the mixture of equal mol of NH_4^+ and NO_3^- (NH_4^+/ NO_3^-, B) or nitrate (NO_3^-, C). Squares, circles and triangles represent different light intensity (150, 300, 600 μmol m^{-2} s^{-1}, respectively). Lines were fitted by linear regression and the co-ordinates of their intersection were taken as estimates of Ci* and $\boldsymbol{R}_d$.