

## Supplementary Materials for

### **Carbon dioxide (CO<sub>2</sub>) levels this century will alter the protein, micronutrients, and vitamin content of rice grains with potential health consequences for the poorest rice-dependent countries**

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**table S1. Elution procedures for vitamin B and vitamin E.** Gradient elution procedures for Vitamin B (A) and Vitamin E (B). The mobile phase consisted of eluent A (Methyl alcohol) and eluent B (0.1% formic acid in water).

**A.**

Time (min)	Flow rate (ml/min)	A : B (% , v/v)	
		A	B
0.00	0.6	0	100
0.00	0.6	5	95
1.00	0.6	95	5
3.50	0.6	95	5
3.51	0.6	0	100
5.50	0.6	0	100

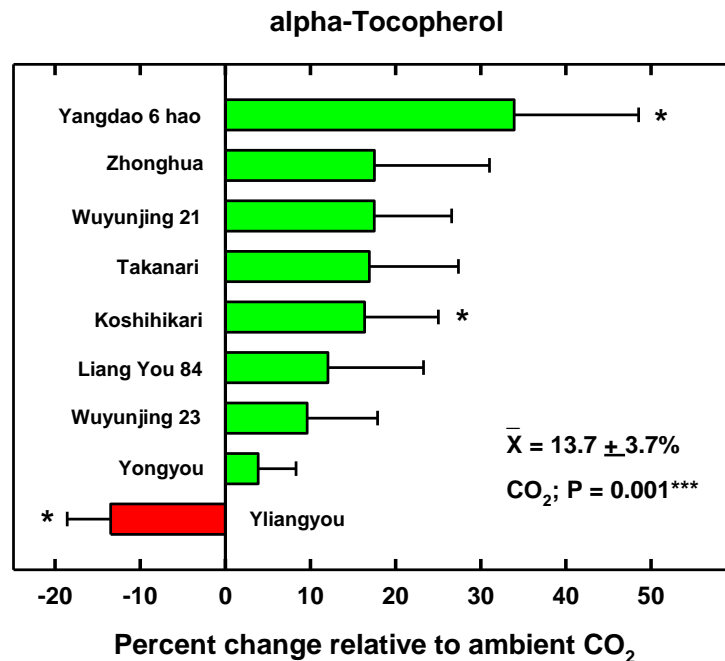
**B.**

Time (min)	Flow rate (ml/min)	A:B (% , v/v)	
		A	B
0	0.6	80	20
0.5	0.6	80	20
2.0	0.6	100	0
6.00	0.6	100	0
6.01	0.6	80	20
8.00	0.6	80	20

**table S2. Compound parameters for vitamins B1, B2, B5, B6, B9 and E.**

\*for quantification

Vitamin	Precursor Ion (m/z)	Product Ion (m/z)	Retention time (min)	Collision energy (V)
B1	265.3	81	1.51	30
		122*		13
B2	377.5	172.1	4.26	30
		243.3*		17
B5	220.2	90.1*	4.04	14
		184.2		12
B6	170	77.1*	2.02	32
		152.2		10
B9	442.2	120.3	4.11	27
		295.5*		15
E ( $\alpha$ -tocopherol)	431.3	137	2.92	34
		165*		28



**fig. S1. As for Fig. 3, but for vitamin E ( $\alpha$ -tocopherol) (see Methods for additional details).**