

Supplementary Table 1. Soil surface properties in My Tu, My Xuyen, and Tran De districts at the depth of 0-20cm.

Site	Soil sample																Water sample		
	Value	pH _{KCl}	pH _{H2O}	TA (meq 100 g ⁻¹)	EC (mS cm ⁻¹)	C _{tot} (%)	N _{tot} (%)	NH ₄ ⁺ (mg kg ⁻¹)	P _{tot} (%P)	P _{Avail} (mg P kg ⁻¹)	Al-P (mg P kg ⁻¹)	Ca-P (mg P kg ⁻¹)	Fe-P (mg P kg ⁻¹)	Al ³⁺ (meq 100 g ⁻¹)	Fe _{tot} dis (mg kg ⁻¹)	Fe ²⁺ (mg kg ⁻¹)	CEC (meq 100 g ⁻¹)	pH _{H2O}	EC (mS cm ⁻¹)
MT	Max	4.05	4.53	0.52	0.74	2.89	0.36	39.1	0.03	23.9	423.8	186.9	46.4	11.2	122.8	94.4	19.7	7.61	5.78
	Mean	3.88	4.36	0.41± 0.11	0.37	2.34± 0.48	0.30± 0.06	31.2± 8.61	0.02±0.01	13.6±6.16	352.7±69.2	80.3±54.3	22.9±13.5	3.94± 1.27	54.3± 40.4	48.3± 29.5	15.4± 3.63	7.45	3.75
	Med	3.96	4.45	0.44	0.29	2.46	0.32	33.8	0.02	11.7	357.8	58.4	18.5	1.55	43.8	53.1	16.4	7.49	3.05
	Min	3.56	4.03	0.23	0.17	1.56	0.19	12.70	0.02	5.67	267.1	26.5	7.42	0.57	13.5	16.4	11.4	7.24	2.42
MX	Max	3.89	4.56	2.80	3.56	3.35	0.36	38.9	0.03	24.1	418.7	187.7	46.7	12.1	123.2	94.5	19.8	7.40	2.24
	Mean	3.78	4.33	0.62	2.70	3.01± 0.25	0.32± 0.06	31.3± 8.60	0.02±0.00	14.2±6.25	348.8±64.6	81.0±54.1	22.8±13.5	4.11± 1.46	54.7± 40.4	48.2± 29.5	15.8± 3.4	7.18	1.96
	Med	3.80	3.46	0.26± 0.96	4.46	2.98	0.33	33.7	0.02	12.6	357.2	58.5	18.0	1.62	43.9	53.4	16.7	7.27	2.07
	Min	3.59	2.90	0.19	3.90	2.33	0.22	12.6	0.02	5.92	268.1	27.3	7.67	0.62	14.5	16.0	12.1	6.87	1.56
TD	Max	3.30	3.73	0.53	4.73	3.32	0.36	39.1	0.03	23.4	421.9	187.0	46.5	11.7	123.1	94.7	19.7	7.28	5.14
	Mean	3.13	3.42	0.36± 0.11	4.42	3.05± 0.20	0.32± 0.5	31.4± 8.46	0.02±0.01	13.7±6.01	351.3±69.1	80.2±54.3	23.2±13.5	4.4± 1.41	54.4± 40.5	55.4± 28.5	15.5± 3.6	5.79	2.70
	Med	3.12	3.42	0.37	4.42	3.12	0.32	33.7	0.02	12.0	357.8	58.1	18.0	1.59	44.3	54.2	16.3	6.95	2.40
	Min	2.91	3.01	0.21	4.01	2.79	0.21	13.3	0.02	5.76	268.40	27.20	7.86	0.62	13.2	17.0	11.5	2.99	1.01

* Note: Max: maximum; Med: Median; Min: Minimum; TD: Tran De. MT: My Tu. MX: My Xuyen. n = 7 at each site (3 x 7 = 21 samples); tot: total; Avail: availability; dis: dissolved.

Supplementary Table 2. Selection for PNSB in BIM containing Na⁺, pH 5.0

PNSB isolate	Na ⁺ resistance (0 ‰)		Na ⁺ resistance (5 ‰)		Na ⁺ resistance (10 ‰)		Na ⁺ , Al ³⁺ , Fe ²⁺ , Mn ²⁺ growth inhibition (10 ‰)	
	pH 5.0		pH 5.0		pH 5.0		pH 5.0	
	ML	AD	ML	AD	ML	AD	ML	AD
ST03	0.90 ^c ±0.12	1.02 ^{de} ±0.09	0.70 ⁱ ±0.12	0.62 ^g ±0.08	4.50 ^a ±0.12	1.03 ^c ±0.01	47.0 ^b ±1.91	35.1 ^{bc} ±1.63
ST05	1.17 ^b ±0.17	1.15 ^{cd} ±0.12	1.09 ^f ±0.13	1.46 ^c ±0.07	4.57 ^a ±0.08	1.37 ^a ±0.17	45.6 ^b ±1.54	35.0 ^{bc} ±1.95
ST08	0.35 ^{fg} ±0.06	0.86 ^{efg} ±0.11	0.34 ^m ±0.03	0.45 ^h ±0.13	Not qualified	Not qualified	Not qualified	Not qualified
ST09	1.35 ^a ±0.11	0.92 ^{ef} ±0.04	2.55 ^b ±0.13	0.98 ^f ±0.05	3.23 ^b ±0.02	1.04 ^c ±0.01	45.1 ^b ±0.93	33.5 ^{bc} ±1.72
ST15	1.49 ^a ±0.09	1.49 ^a ±0.20	2.30 ^d ±0.10	2.79 ^a ±0.05	3.29 ^b ±0.10	1.25 ^b ±0.07	38.8 ^{cd} ±1.07	27.5 ^d ±2.46
ST16	0.89 ^c ±0.05	0.94 ^e ±0.15	1.37 ^e ±0.01	0.95 ^f ±0.05	2.25 ^d ±0.01	1.17 ^b ±0.03	35.0 ^{ef} ±1.60	24.7 ^d ±2.72
ST22	0.58 ^d ±0.06	0.67 ^{hi} ±0.07	0.80 ^{hi} ±0.02	0.62 ^g ±0.02	2.61 ^d ±0.14	1.06 ^c ±0.08	46.2 ^b ±1.66	34.4 ^{bc} ±1.08
ST23	0.52 ^{de} ±0.15	0.38 ^k ±0.12	0.35 ^m ±0.05	0.28 ^j ±0.04	Not qualified	Not qualified	Not qualified	Not qualified
ST25	0.64 ^d ±0.13	0.59 ^{hij} ±0.04	0.53 ^{jk} ±0.02	1.33 ^d ±0.05	1.29 ^e ±0.12	1.03 ^c ±0.01	41.7 ^c ±1.15	32.0 ^c ±1.16
ST26	1.03 ^{bc} ±0.06	0.95 ^e ±0.12	0.96 ^g ±0.07	1.32 ^d ±0.03	3.09 ^c ±0.08	1.01 ^c ±0.08	33.6 ^{ef} ±2.10	24.3 ^{de} ±1.76
ST27	0.91 ^c ±0.06	0.77 ^{feh} ±0.12	0.80 ^{hi} ±0.03	0.57 ^g ±0.03	1.15 ^h ±0.02	1.03 ^c ±0.03	36.6 ^e ±2.42	22.7 ^e ±1.35
ST28	0.56 ^{de} ±0.08	0.74 ^{ghi} ±0.05	0.56 ^j ±0.07	1.12 ^e ±0.12	0.38 ^l ±0.05	0.53 ^e ±0.05	Not qualified	Not qualified
ST31	0.92 ^c ±0.11	0.65 ^{hij} ±0.01	2.43 ^c ±0.03	0.93 ^f ±0.03	2.59 ^d ±0.02	1.04 ^c ±0.05	45.5 ^b ±3.75	32.3 ^c ±3.13
ST32	1.15 ^b ±0.03	1.02 ^{de} ±0.06	2.54 ^b ±0.00	0.99 ^f ±0.04	1.92 ^f ±0.07	1.00 ^c ±0.03	33.1 ^f ±0.57	22.6 ^e ±0.95
ST33	1.18 ^b ±0.06	1.23 ^{bc} ±0.07	2.87 ^a ±0.01	1.51 ^c ±0.06	2.53 ^d ±0.07	1.22 ^b ±0.08	41.7 ^c ±1.65	34.6 ^b ±1.36
ST34	1.16 ^b ±0.14	1.36 ^{ab} ±0.14	0.84 ^h ±0.01	1.73 ^b ±0.01	3.25 ^b ±0.09	1.01 ^c ±0.03	47.0 ^b ±1.50	36.1 ^b ±3.18
ST36	0.49 ^{def} ±0.06	0.61 ^{hij} ±0.07	1.36 ^e ±0.03	1.33 ^d ±0.14	0.77 ⁱ ±0.06	0.68 ^d ±0.03	54.1 ^a ±2.01	52.0 ^a ±1.65
ST42	0.40 ^{ef} ±0.05	0.53 ^{jk} ±0.01	0.43 ^{klm} ±0.01	0.32 ^{ij} ±0.02	Not qualified	Not qualified	Not qualified	Not qualified
ST45	0.13 ^h ±0.02	0.55 ^{jk} ±0.08	0.39 ^{lm} ±0.03	0.46 ^h ±0.02	Not qualified	Not qualified	Not qualified	Not qualified
ST46	0.22 ^{gh} ±0.09	0.58 ^{ij} ±0.02	0.47 ^{kl} ±0.02	0.42 ^{hi} ±0.01	Not qualified	Not qualified	Not qualified	Not qualified

* Note: Different letters following numbers mean different statistically at $P < 0.05$ (*); PNSB: purple nonsulfur bacteria; ML: Microaerobic light; AD: Aerobic dark.