Supporting Information

Divergent Defense Strategies Induced by *Variovorax soli* and *Microbacterium phyllosphaerae*：Benefits for Strawberry Growth and Powdery Mildew Resistance

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Supplementary Figures



Treatment T1

Figure S1. Symptoms of powdery mildew on strawberry leaves. The strawberry seedlings were infected with powdery mildew after 10 days of cultivation in the T1 group; the white spots appeared on the leaves. The arrow indicated the appearance of powdery mildew.

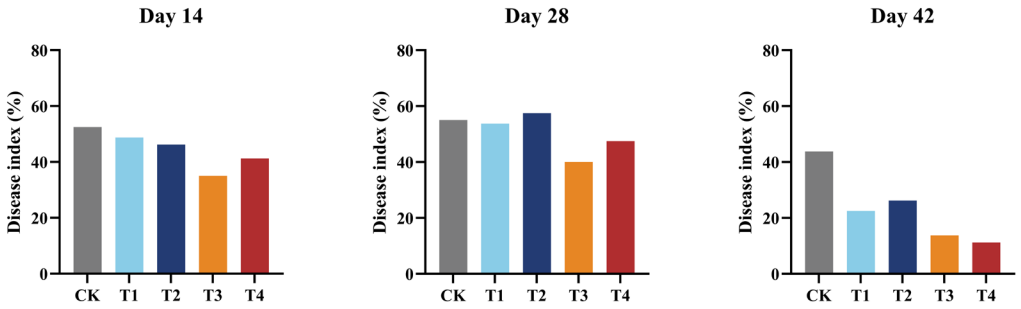


Figure S2. The disease index of strawberry seedlings inoculated with different PGPB on day 14, 28 and 42 of cultivation.

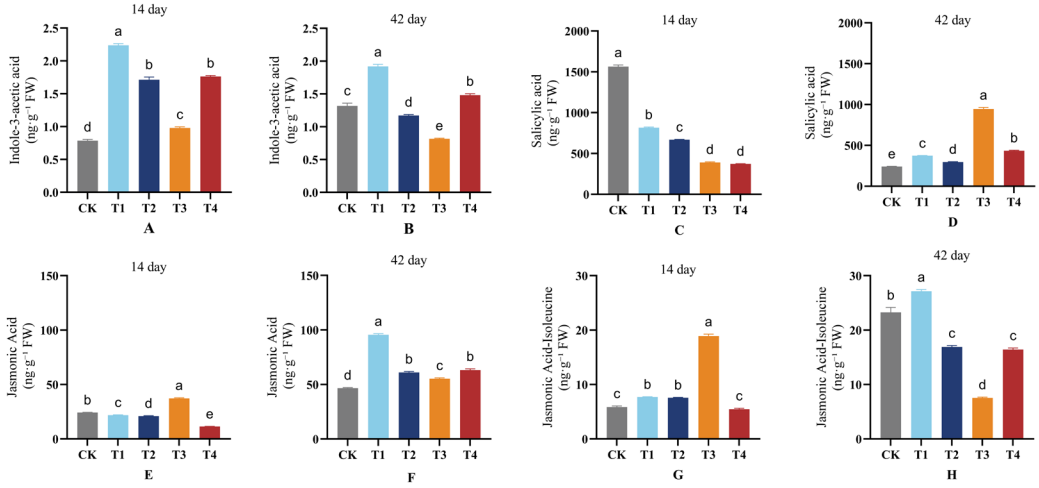


Figure S3. Accumulation of different plant hormones in strawberry seedling on day 14 (A, C, E & G) and day 42 (B, D, F & H). One-way ANOVA was performed, followed by Duncan's multiple range test. Different letters indicate significant differences among each treatment ($P < 0.05$). The data are presented as the mean ± standard deviation of three individual replicates.

Supplementary Table

Table S1. Components of MMAB culture medium.

Component	Content/（$g \cdot L^{-1}$）	Component	Content/（$g \cdot L^{-1}$）
Dipotassium hydrogen phosphate	30	Ferrous sulfate heptahydrate	0.025
Sodium dihydrogen Phosphate	10	Sodium malate	50
Magnesium sulfate heptahydrate	3	Biotin	0.05
Potassium chloride	1.5	Ammonium chloride	10
Calcium chloride dihydrate	0.1	Agar	15

Table S2. The analytical conditions of UPLC

Parameter	Condition
Column	Waters ACQUITY UPLC HSS T3(1.8 μm, 2.1 mm×50 mm)
Column temperature	40℃
Flow rate	0.3 mL/min
Injection volume	2 μL
Injection volume	0.15
Mobile Phase A	water (0.1% acetic acid)
Mobile Phase B	acetonitrile (0.1% acetic acid)

Table S3. The Gradient Program of UPLC

Time(min)	Mobile Phase A(%)	Mobile Phase B(%)
0	85	15
0.5	85	15
1.5	10	90
3.0	10	90
3.1	85	15
5.0	85	15

Table S4. The ESI source parameters.

Parameter	Condition
Spray voltage	-2.8 kV
sheath gas pressure	40 arb
aux gas pressure	10 arb
capillary temperature	320℃
aux gas heater temperature	350℃

Table S5. The SPAD value of strawberry seedling in different treatment groups

	0 d	7 d	14 d	21 d	28 d	35 d	42 d
CK	51.87±2.67a	49.63±4.55a	48.62±4.30a	46.28±2.84b	45.59±5.28a	47.82±9.18c	50.99±6.77b
T1	51.89±2.90a	49.61±3.89a	47.70±4.31a	45.72±2.27b	45.64±7.35a	56.75±3.19a	53.10±2.77b
T2	51.44±5.69a	48.92±5.52a	48.41±3.59a	48.06±3.33b	47.92±6.24a	53.05±5.64ab	50.95±3.51b
T3	49.84±2.47a	49.16±4.55a	48.34±3.69a	48.06±4.23b	45.04±5.02a	49.15±7.59bc	54.59±9.33b
T4	51.41±2.02a	50.66±3.27a	50.58±7.31a	50.45±4.64a	48.30±3.50a	48.53±7.81bc	58.22±3.78a

Table S5-1

	0 d	7 d	14 d	21 d	28 d	35 d	42 d
CK	51.87±2.67a	49.63±4.55abc	48.62±4.30abcd	46.28±2.84cd	45.59±5.28d	47.82±9.18bcd	50.99±6.77ab
T1	51.89±2.90bc	49.61±3.89cd	47.70±4.31de	45.72±2.27e	45.64±7.35e	56.75±3.19a	53.10±2.77b
T2	51.44±5.69ab	48.92±5.52bc	48.41±3.59bc	48.06±3.33bc	47.92±6.24c	53.05±5.64bc	50.95±3.51abc
T3	49.84±2.47b	49.16±4.55b	48.34±3.69bc	48.06±4.23bc	45.04±5.02c	49.15±7.59b	54.59±9.33a
T4	51.41±2.02b	50.66±3.27b	50.58±7.31b	50.45±4.64b	48.30±3.50b	48.53±7.81b	58.22±3.78a

Table S5-2

All values are presented as mean ± standard deviation. One-way ANOVA was performed to compare differences between the means among each treatment at the same time point (Table S5-1) or different time points within the same group (Table S5-2). Duncan's multiple range test was used, and there were no significant differences between means with the same letters ($p < 0.05$). At each time point, 20 leaves were randomly selected from each group for measurement.

Table S6. Plant above-ground length of strawberry seedlings in different treatment groups.

Cultivation Days/ (d)	CK/(cm)	T1/(cm)	T2/(cm)	T3/(cm)	T4/(cm)
14	20.23 ± 4.08b	18.88 ± 3.49b	21.58 ± 3.65b	21.32 ± 3.58a	21.18 ± 4.28b
28	22.11 ± 2.89ab	20.13 ± 2.79b	20.52 ± 2.70b	17.72 ± 3.97b	21.23 ± 3.47b
42	24.42 ± 3.25a	24.84 ± 2.59a	27.32 ± 3.78a	22.83 ± 3.63a	26.19 ± 4.19a

Each value was presented as mean ± standard deviation. One-way ANOVA was used and the different letters indicate the significance of the differences analyzed using the Duncan's multiple range test within one treatment at different time points (P<0.05). At each time point, 20 seedlings were measured in each group.

Table S7. The root length and root width of strawberry seedling in different treatment groups

Treatments	Root length /（cm）	Root width /（cm）	Length/Width ratio
CK	17.78 ± 1.96a	4.88±0.61b	3.64
T1	19.31 ± 3.13a	6.07±0.41a	3.18
T2	19.00 ± 2.35a	6.52±0.96a	2.91
T3	16.34 ± 1.73a	5.96±0.88ab	2.74
T4	17.78 ± 2.34a	6.20±0.30a	2.87

Each value is presented as mean ± standard deviation. One-way ANOVA was used and the different letters indicate the significance of the differences analyzed using the Duncan's multiple range test among each treatment (P<0.05). The root length of each group was measured with 10 replicates, and the root width was measured in 5 replicates.