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Supplementary Information includes Figs. S1–S4 and Table S1

Growth-related, antifungal and metal-binding activities of *Penicillium janthinellum* Z1-1031

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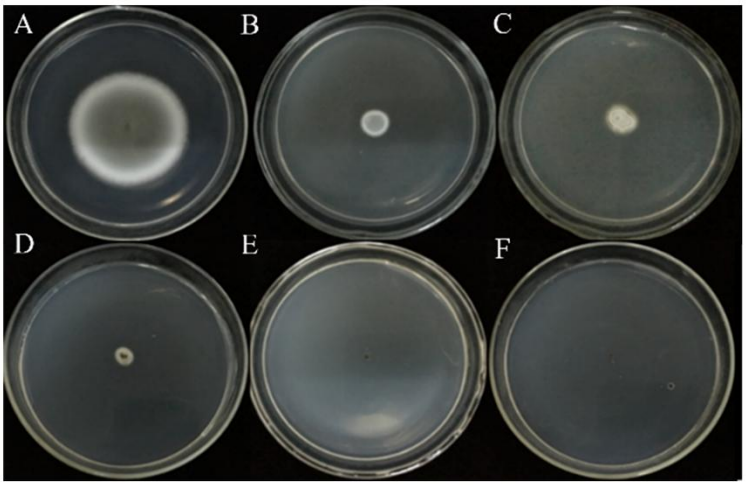

Fig. S1 Sensitivity of strain Z1-1031 to hygromycin B. Growth of wild-type Z1-1031 on PDA containing (A) 0, (B) 200, (C) 300, (D) 400, (E) 500, and (F) 600 μg mL^{-1} hygromycin B. The sensitivity assay was used to select 500 μg mL^{-1} hygromycin B for screening of EGFP transformants.

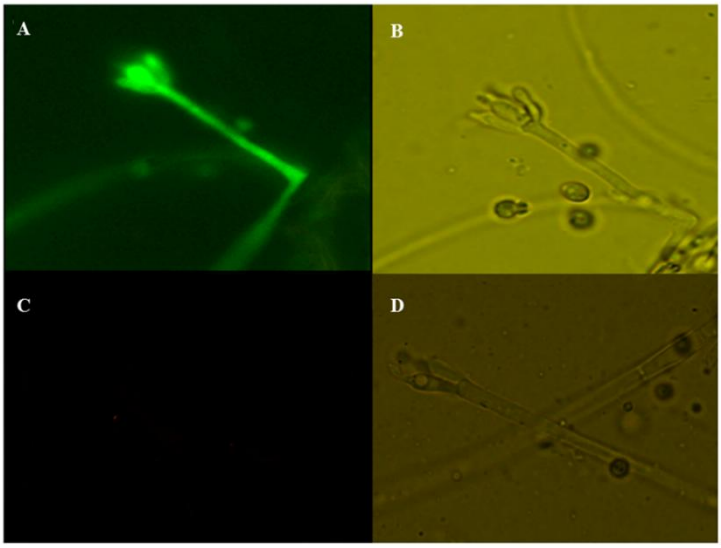

Fig. S2 Fluorescence microscopic verification of the EGFP-labeled strain Z1-1031-egfp. (A) Fluorescence image of Z1-1031-egfp under blue-light excitation; (B) corresponding bright-field image of Z1-1031-egfp; (C) fluorescence image of wild-type Z1-1031 under blue-light excitation; and (D) corresponding bright-field image of wild-type Z1-1031.

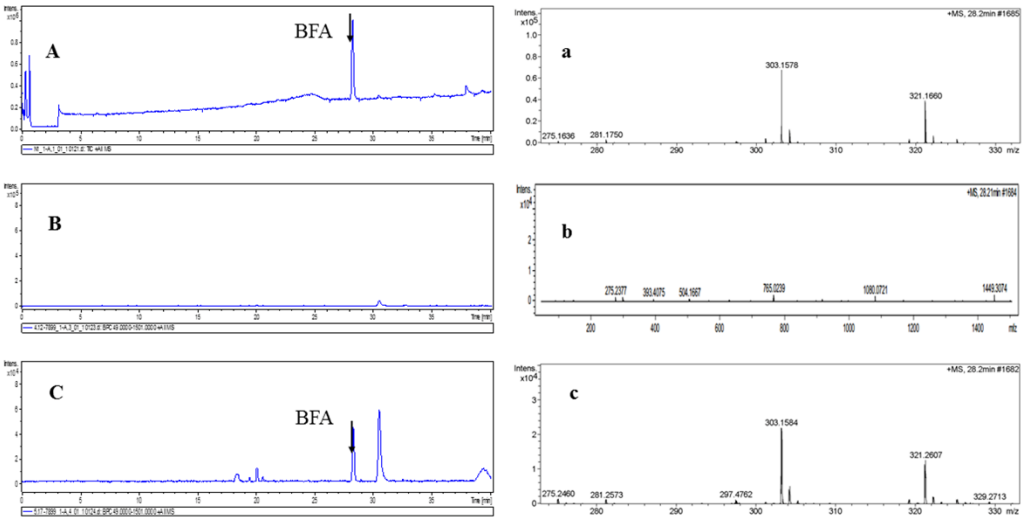

Fig. S3 Detection of brefeldin A (BFA) in rhizosphere soil by LC-ESI-QTOF-MS in positive-ion mode. (A, a) BFA reference standard; (B, b) rhizosphere soil treated with sterile distilled water (control); and (C, c) rhizosphere soil collected 49 days after inoculation with strain Z1-1031. The characteristic ion at *m/z* 303.1584 detected in the Z1-1031-treated rhizosphere sample was consistent with that of the BFA reference standard.

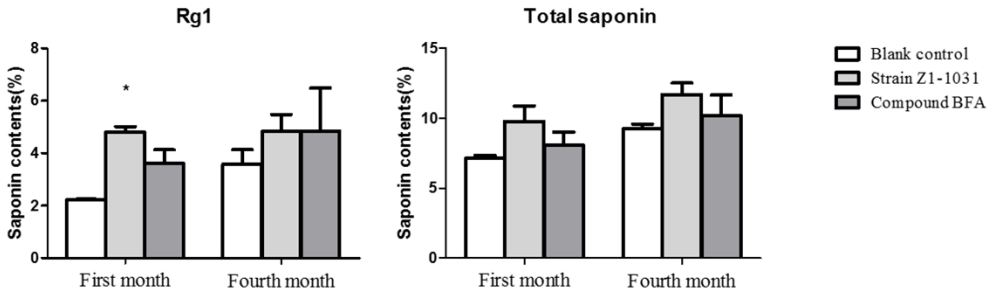

Fig. S4 Effects of strain Z1-1031 and brefeldin A (BFA) on ginsenoside Rg1 and total measured saponin contents in *Panax notoginseng* roots. Ginsenoside Rg1 and total measured saponins were determined after one and four months of treatment. Total measured saponins comprised notoginsenoside R1 and ginsenosides Rg1, Re, Rb1, and Rd. Data are presented as mean ± standard deviation (SD) of three independent plots (n = 3). Treatment, time, and the treatment × time interaction were analyzed using a linear mixed-effects model with plot nested within treatment as a random effect. Pairwise comparisons among treatments at each sampling time were adjusted using Tukey's method. Asterisks indicate significant differences from the corresponding blank control at the same sampling time (*$P < 0.05$).

Table S1 ^{1}H (400 MHz) and ^{13}C (125 MHz) NMR spectroscopic data for brefeldin A (BFA) in DMSO-d_6

Position	Compound BFA	
	δ_H (J in Hz)	δ_C
1		165.8
2	5.72, dd (15.6,2.4)	116.34
3	7.36, dd (15.6,2.4)	154.51
4	3.92, m	74.34
5	1.66, m	51.8
6	1.83, m	40.93
	1.69, m	
7	4.03, m	70.53
8	2.31, m	43.01
	1.29, m	
9	1.95, m	43.32
10	5.20, m	137.08
11	5.66, m	129.39
12	1.95, m	31.44
	1.73, m	
13	1.76, m	26.49
	0.73, m	
14	1.70, m	33.41
	1.48, m	
15	4.70, m	70.91
16	1.17, d (6.43)	20.77

Chemical shifts (δ) are given in ppm, and coupling constants (*J*) are given in Hz.