

Table S1. *P. expansum* strains used in this study, including sample IDs and geographic origins.

ID	Sample Name	Geographic Location	Identification
1	GSPL1	Gansu, Pingliang (N35.545, E105.698)	<i>Penicillium expansum</i>
2	GSPL2	Gansu, Pingliang (N35.547, E105.696)	<i>Penicillium expansum</i>
3	GSPL3	Gansu, Pingliang (N35.472, E105.722)	<i>Penicillium expansum</i>
4	GSPL4	Gansu, Pingliang (N35.118, E105.955)	<i>Penicillium expansum</i>
5	GSPL5	Gansu, Pingliang (N35.217, E107.569)	<i>Penicillium expansum</i>
6	GSPL6	Gansu, Pingliang (N35.498, E105.712)	<i>Penicillium expansum</i>
7	GSPL7	Gansu, Pingliang (N35.217, E107.569)	<i>Penicillium expansum</i>
8	GSTS1	Gansu, Tianshui (N34.897, E105.727)	<i>Penicillium expansum</i>
9	GSTS2	Gansu, Tianshui (N35.100, E105.575)	<i>Penicillium expansum</i>
10	GSTS3	Gansu, Tianshui (N34.382, E105.676)	<i>Penicillium expansum</i>
11	GSTS4	Gansu, Tianshui (N34.675, E105.808)	<i>Penicillium expansum</i>
12	GSTS5	Gansu, Tianshui (N34.471, E105.710)	<i>Penicillium expansum</i>
13	GSTS6	Gansu, Tianshui (N34.471, E105.710)	<i>Penicillium expansum</i>
14	HBQHD1	Hebei, Qinhuangdao (N39.758, E119.092)	<i>Penicillium expansum</i>
15	HBQHD2	Hebei, Qinhuangdao (N39.692, E118.864)	<i>Penicillium expansum</i>
16	HBQHD3	Hebei, Qinhuangdao (N39.654, E118.963)	<i>Penicillium expansum</i>
17	HBQHD5	Hebei, Qinhuangdao (N39.770, E119.216)	<i>Penicillium expansum</i>
18	HLJMDJ1	Heilongjiang, Mudanjiang (N44.697, E129.721)	<i>Penicillium expansum</i>
19	HLJMDJ2	Heilongjiang, Mudanjiang (N44.087, E131.125)	<i>Penicillium expansum</i>
20	HNSMX1	Henan, Shanmenxia (N34.461, E111.096)	<i>Penicillium expansum</i>
21	HNSMX2	Henan, Shanmenxia (N34.436, E111.047)	<i>Penicillium expansum</i>
22	HNSMX3	Henan, Shanmenxia (N34.276, E110.430)	<i>Penicillium expansum</i>
23	HNSMX4	Henan, Shanmenxia (N34.446, E111.204)	<i>Penicillium expansum</i>
24	HNSMX5	Henan, Shanmenxia (N34.279, E110.990)	<i>Penicillium expansum</i>
25	HNSMX6	Henan, Shanmenxia (N34.710, E111.224)	<i>Penicillium expansum</i>
26	HNSMX7	Henan, Shanmenxia (N34.656, E111.024)	<i>Penicillium expansum</i>
27	SCLS1	Sichuan, Liangshan (N27.480, E101.411)	<i>Penicillium expansum</i>
28	SCLS2	Sichuan, Liangshan (N27.419, E101.628)	<i>Penicillium expansum</i>
29	XJYL1	Xinjiang, Yining (N43.674, E81.787)	<i>Penicillium expansum</i>
30	SCLS4	Sichuan, Liangshan (N27.468, E101.621)	<i>Penicillium expansum</i>
31	SCLS5	Sichuan, Liangshan (N27.419, E101.628)	<i>Penicillium expansum</i>
32	SXXY1	Shaanxi, Xianyang (N34.700, E108.114)	<i>Penicillium expansum</i>
33	SXXY2	Shaanxi, Xianyang (N34.563, E108.159)	<i>Penicillium expansum</i>
34	SXXY3	Shaanxi, Xianyang (N35.100, E107.937)	<i>Penicillium expansum</i>
35	SXXY4	Shaanxi, Xianyang (N35.234, E107.734)	<i>Penicillium expansum</i>
36	SXXY5	Shaanxi, Xianyang (N35.227, E107.839)	<i>Penicillium expansum</i>

37	SXXY6	Shaanxi, Xianyang (N35.112, E108.334)	<i>Penicillium expansum</i>
38	SXXY7	Shaanxi, Xianyang (N35.234, E107.734)	<i>Penicillium expansum</i>
39	SXXY8	Shaanxi, Xianyang (N35.167, E108.340)	<i>Penicillium expansum</i>
40	SXXY9	Shaanxi, Xianyang (N35.043, E108.378)	<i>Penicillium expansum</i>
41	SXXY10	Shaanxi, Xianyang (N34.586, E108.101)	<i>Penicillium expansum</i>
42	XJYL2	Xinjiang, Yining (N43.877, E81.727)	<i>Penicillium expansum</i>
43	SXYC3	Shanxi, Yuncheng (N35.311, E110.593)	<i>Penicillium expansum</i>
44	SXYC4	Shanxi, Yuncheng (N35.300, E110.840)	<i>Penicillium expansum</i>
45	SXYC5	Shanxi, Yuncheng (N35.268, E110.612)	<i>Penicillium expansum</i>
46	SXYC6	Shanxi, Yuncheng (N34.694, E110.694)	<i>Penicillium expansum</i>
47	SXYC7	Shanxi, Yuncheng (N35.056, E110.414)	<i>Penicillium expansum</i>
48	SXYC8	Shanxi, Yuncheng (N35.008, E110.572)	<i>Penicillium expansum</i>
49	SXYC9	Shanxi, Yuncheng (N35.167, E110.569)	<i>Penicillium expansum</i>
50	SXYC10	Shanxi, Yuncheng (N35.311, E110.661)	<i>Penicillium expansum</i>
