Supplementary Materials

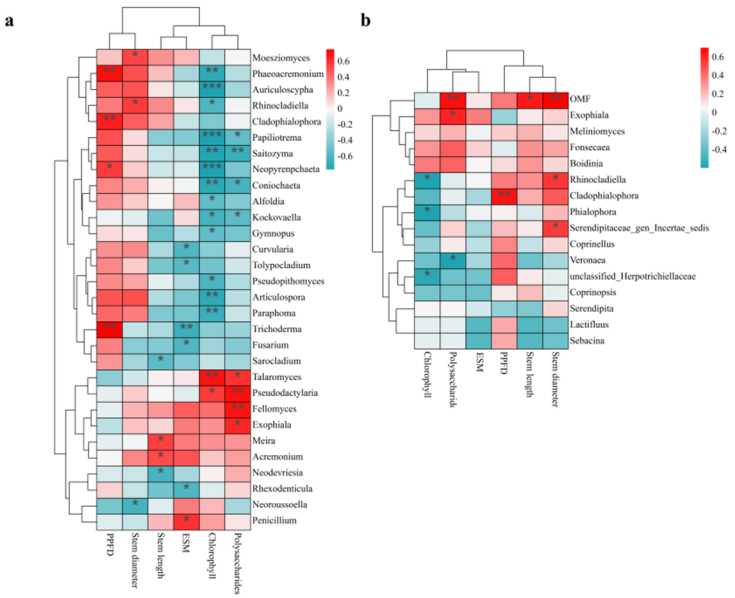


Figure S1. Correlation analysis between the composition and abundance of the top 50 endophytic fungi and OMF and the morphological traits, light density, and compound contents of *Dendrobium officinale*. The correlation between root endophytic fungal sequences (a) and mycorrhizal fungi (b) from different cultivation modes, and ecophysiological indicators, including photosynthetic photon flux density (PPFD), stem length, stem thickness, leaf chlorophyll content, stem polysaccharide content, and ethanol-soluble extract (ESE) content. Significance levels are indicated as * (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$). The analysis was performed using Wekemo Bioncloud (www.bioincloud.tech).

Table S1. Thirty-four fungal genera shared in *Dendrobium* roots across four different cultivation modes.

	Taxonomy	Average RA(%)
1	*Pyrenochaetopsis*	21.24
2	*Fusarium*	11.56
3	*Talaromyces*	9.77
4	*Cladosporium*	3.71
5	*Pseudodactylaria*	2.78
6	*unclassified Ascomycota*	2.76
7	*unclassified Didymellaceae*	2.70
8	***Tolypocladium***	2.46
9	***unclassified Botryosphaeriaceae***	2.14
10	***Vishniacozyma***	2.13

11	*Moesziomyces*	1.90
12	*Coniochaeta*	1.43
13	*unclassified Agaricomycetes*	1.31
14	*Alfoldia*	1.20
15	*unclassified Hypocreales*	0.99
16	*Trichoderma*	0.96
17	*Cyphellophora*	0.87
18	*Exophiala*	0.57
19	*Cladophialophora*	0.41
20	*Plectosphaerella*	0.35
21	*Acremonium*	0.29
22	***Phaeosphaeria***	0.24
23	*Phaeoacremonium*	0.17
24	*unclassified Dothideomycetes*	0.15
25	***unclassified Pleosporales***	0.09
26	***unclassified Serendipitaceae***	0.09
27	***Ochroconis***	0.06
28	*unclassified Aspergillaceae*	0.04
29	*Aspergillus*	0.03
30	*Resinicium*	0.03
31	*Penicillium*	0.01
32	*unclassified Helotiales*	0.01
33	***Colletotrichum***	0.01
34	*Wallemia*	0.01

Notes: Eight fungal genera marked in bold are shared only by the roots and are not found in cultivation substrates.

Table S2. Top 10 fungal genera found in *Dendrobium* roots and substrates.

	Root		Substrate	
	Taxonomy	Average RA(%)	Taxonomy	Average RA(%)
1	*Pyrenochaetopsis*	19	*Resinicium*	19
2	*Fusarium*	14	*Subulicystidium*	9
3	*Talaromyces*	12	*Trichoderma*	7
4	*Cladosporium*	4	*Cladophialophora*	4
5	*Vishniacozyma*	2	*Chaetosphaeria*	3
6	*Pseudodactylaria*	2	*Pluteus*	3
7	*Tolypocladium*	2	*Phaeoacremonium*	2
8	*Moesziomyces*	1	*Scytalidium*	1
9	*Coniochaeta*	1	*Cercophora*	1
10	*Fellomyces*	1	*Myxocephala*	1