



Figure S1. The information of pathogen (*Lophodermium piceae*). (a) The ascoma of *L. piceae* on the needle of *Picea asperata*; (b) The transverse section of *L. piceae* ascoma; (c) The ascospore of *L. piceae*; (d) The conidium of *L. piceae*. *L. piceae* characteristic sequence Genbank ID: KX573897.

Table S1. The details of the *Picea asperata* collection conditions on a forest farm of Erlang Mountain in Sichuan, China.

Time of collecting	Precipitation/Annual average	Humidity (%)	Altitude	Map coordinates (longitude and latitude)	Percentage of needles infected by <i>Lophodermium piceae</i> (%) / The growth rate of infected needles (%)		
					Healthy <i>P. asperata</i>	Infected <i>P. asperata</i>	<i>P.</i>
2018.05.25	625.18 mm	64	2830.00 m	N:	0/0	45 ± 0.08/0	
2018.07.26		47		25°51'34.66"	0/0	52 ± 0.06/15.56	
2018.09.25		51		E:	0/0	68 ± 0.11/30.77	
2018.11.27		60		102°16'30.96"	0/0	76 ± 0.18/11.76	

