

## Supplementary Material

### A survey of culturable fungal endophytes from *Festuca rubra* subsp. *pruinosa*, a grass from marine cliffs, reveals a core microbiome

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**Supplementary Table 1.** Taxonomic identification of fungi isolated from surface sterilized roots of *Festuca rubra* subsp. *pruinosa* at five populations from marine cliffs in northern Spain.

Strain	Taxon	Identity to closest match (%)	ITS sequence accession number	Order	Incidence in plants (%)	Number of Populations
T150	<i>Fusarium oxysporum</i>	100	MH578626	Hypocreales	57.14	5
EB4	<i>Diaporthe</i> sp. A	100	MH578627	Diaporthales	54.29	5
C29	<i>Fusarium</i> sp. A	100	MH626490	Hypocreales	40.95	4
S75	<i>Helotiales</i> sp. A	100	MH626491	Helotiales	37.14	5
T105	<i>Drechslera</i> sp.	100	MH626492	Pleosporales	27.62	4
S132	<i>Slopeiomyces cylindrosporus</i>	100	MH626493	Magnaporthales	27.62	3
T120	<i>Penicillium</i> sp. F	100	MH626494	Eurotiales	20.00	5
S7	<i>Darksidea</i> sp.	99	MH628220	Pleosporales	17.14	3
T131	<i>Periconia macrospinoso</i>	100	MH628221	Pleosporales	16.19	3
T122	<i>Penicillium</i> sp. A	100	MH628222	Eurotiales	14.29	4
T16	<i>Alternaria</i> sp. A	99	MH628223	Pleosporales	13.33	3
S38	<i>Fusarium</i> sp. B	99	MH628224	Hypocreales	13.33	4
C2	<i>Dactylonectria alcacerensis</i>	100	MH628225	Hypocreales	13.33	4
E79	<i>Helotiales</i> sp. B	100	MH628226	Helotiales	11.43	3
T140	<i>Alternaria</i> sp. B	100	MH628227	Pleosporales	10.48	4
E74	<i>Lachnum</i> sp. A	99	MH628228	Helotiales	10.48	3

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Strain	Taxon	Identity to closest match (%)	ITS sequence accession number	Order	Incidence in plants (%)	Number of Populations
CP17	<i>Trichoderma</i> sp. B	100	MH628229	Hypocreales	10.48	2
S115	<i>Alternaria</i> sp. C	98	MH633916	Pleosporales	9.52	4
T90	<i>Chaetosphaeriaceae</i> sp. A	99	MH633917	Chaetosphaeriales	9.52	2
T24	<i>Agaricales</i> sp.	100	MH633918	Agaricales	8.57	4
S4	<i>Plectosphaerella cucumerina</i>	100	MH633919	Incertae sedis	8.57	3
E18	<i>Pleosporales</i> sp. C	100	MH633920	Pleosporales	8.57	3
S8	<i>Pleosporales</i> sp. F	100	MH633921	Pleosporales	8.57	2
T107	<i>Sarocladium strictum</i>	100	MH633922	Incertae sedis	8.57	3
T174	<i>Helotiales</i> sp. C	100	MH633923	Helotiales	7.62	3
S113	<i>Ceratobasidium</i> sp. A	100	MH633924	Canthareallales	6.67	2
CP15	<i>Helotiales</i> sp. D	99	MH633925	Helotiales	6.67	1
S59	<i>Pleosporales</i> sp. B	100	MH633926	Pleosporales	6.67	3
S50	<i>Alternaria</i> sp. D	100	MH633927	Pleosporales	5.71	2
E35	<i>Chaetomium novozelandicum</i>	99	MH633928	Sordariales	5.71	1
C89	<i>Fusarium</i> sp. D	100	MH633929	Hypocreales	5.71	2
E58	<i>Lachnum</i> sp. B	99	MH633930	Helotiales	5.71	3
T176	<i>Marasmius</i> sp. A	99	MH633931	Agaricales	5.71	3
S100	<i>Nemania diffusa</i>	100	MH633932	Xylariales	5.71	2
E20	<i>Pyrenochaetopsis</i> sp.	99	MH633933	Pleosporales	5.71	2
C22	<i>Dichotomopilus</i> sp. A	99	MH633934	Sordariales	4.76	3
CP69	<i>Ilyonectria</i> sp. B	100	MH633935	Hypocreales	4.76	2
S94	<i>Mortierella</i> sp. A	100	MH633936	Mortierellales	4.76	2
S33	<i>Diaporthe</i> sp. B	100	MH633937	Diaporthales	4.76	1
CP74	<i>Dichotomopilus</i> sp. B	99	MH633938	Melanosporales	4.76	1
S104	<i>Chaetosphaeriales</i> sp. A	100	MH633939	Chaetosphaeriales	3.81	2
T165	<i>Clohesyomyces</i> sp.	99	MH633940	Pleosporales	3.81	1
E17	<i>Clonostachys</i> sp.	100	MH633941	Hypocreales	3.81	2
CP23	<i>Ascomycota</i> sp. B	93	MH633942	Hypocreales	3.81	1
E14	<i>Ilyonectria</i> sp. A	99	MH644805	Hypocreales	3.81	1
T25	<i>Microdochium</i> sp. A	99	MH633943	Xylariales	3.81	2
CP56	<i>Pleosporales</i> sp. I	92	MH633944	Pleosporales	3.81	1
CP88	<i>Sordariomycetes</i> sp.	99	MH633945	unknown	3.81	2
T96	<i>Trichoderma</i> sp. A	99	MH633946	Hypocreales	3.81	3
T74	<i>Absidia</i> sp.	99	MH633947	Mucolares	2.86	2

Strain	Taxon	Identity to closest match (%)	ITS sequence accession number	Order	Incidence in plants (%)	Number of Populations
S68	<i>Exophiala pisciphila</i>	100	MH633948	Chaetothyriales	2.86	3
S78	<i>Fusarium</i> sp. G	99	MH633949	Hypocreales	2.86	1
S19	<i>Fusarium</i> sp. H	100	MH633950	Hypocreales	2.86	1
CP59	<i>Marasmius tricolor</i>	100	MH633951	Agaricales	2.86	1
E2	<i>Penicillium</i> sp. E	99	MH633952	Eurotiales	2.86	1
S124	<i>Penicillium</i> sp. J	100	MH633953	Eurotiales	2.86	1
S107	<i>Periconia</i> sp.	100	MH633954	Pleosporales	2.86	1
S133	<i>Preussia</i> sp. B	97	MH633955	Pleosporales	2.86	1
T13	<i>Thozetella</i> sp.	99	MH633956	Chaetosphaeriales	2.86	2
T138	<i>Umbelopsis</i> sp.	99	MH633863	Mucolales	2.86	2
S87	<i>Acrocalymna</i> sp.	100	MH633864	Pleosporales	1.90	2
T39	<i>Ilyonectria robusta</i>	100	MH633865	Hypocreales	1.90	1
T143	<i>Ophiosphaerella</i> sp. A	99	MH633866	Pleosporales	1.90	2
CP14	<i>Paraconiothyrium</i> sp.	100	MH633867	Pleosporales	1.90	1
T111	<i>Paraphaeosphaeria</i> sp. A	99	MH633868	Pleosporales	1.90	1
S76	<i>Paraphaeosphaeria</i> sp. C	100	MH633869	Pleosporales	1.90	1
E45	<i>Penicillium</i> sp. G	98	MH633870	Eurotiales	1.90	1
S116	<i>Penicillium</i> sp. I	99	MH633871	Eurotiales	1.90	1
CP81	<i>Penicillium</i> sp. K	99	MH633872	Eurotiales	1.90	1
S129	<i>Diaporthe</i> sp. C	100	MH633873	Diaporthales	1.90	1
C66	<i>Diaporthe</i> sp. D	99	MH633874	Diaporthales	1.90	2
T153	<i>Pleosporales</i> sp. A	99	MH633875	Pleosporales	1.90	1
E61	<i>Clavicipitaceae</i> sp. A	100	MH633876	Hypocreales	1.90	1
S51	<i>Ceratobasidium</i> sp. B	99	MH633877	Cantharellales	1.90	1
CP51	<i>Talaromyces wortmannii</i>	100	MH633878	Eurotiales	1.90	1
T129	<i>Talaromyces</i> sp. A	100	MH633879	unknown	1.90	1
S102	<i>Ascomycota</i> sp. E	100	MH633880	unknown	1.90	1
S46	<i>Acrostalagmus luteoalbus</i>	100	MH633881	Hypocreales	0.95	1
C42	<i>Arthrimum</i> sp.	100	MH633882	Xylariales	0.95	1
S89	<i>Aspergillus nomius</i>	100	MH633883	Eurotiales	0.95	1
CP34	<i>Aureobasidium pullulans</i>	100	MH633884	Dothideales	0.95	1
CP11	<i>Bartalinia</i> sp.	99	MH633885	Amphisphaeriales	0.95	1
E48	<i>Boeremia exigua</i>	99	MH633886	Pleosporales	0.95	1
S80	<i>Capnodium</i> sp.	99	MH633887	Capnodiales	0.95	1

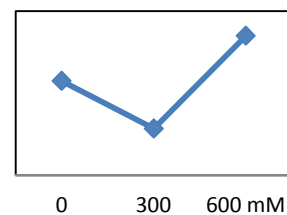
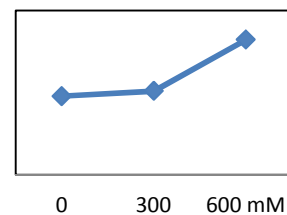
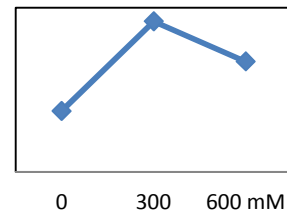
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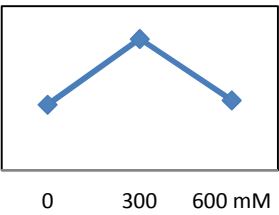
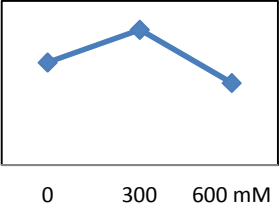
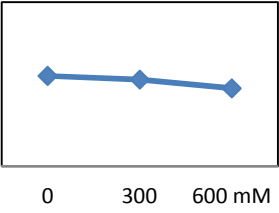
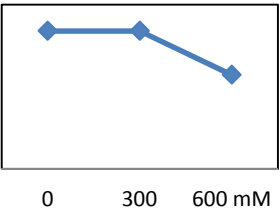
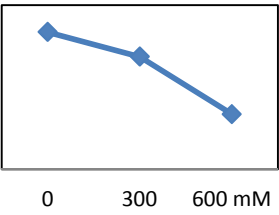
Strain	Taxon	Identity to closest match (%)	ITS sequence accession number	Order	Incidence in plants (%)	Number of Populations
C48	<i>Ceratobasidiaceae</i> sp. A	99	MH633888	Canthareallales	0.95	1
S72	<i>Dichotomopilus funicola</i>	100	MH633889	Sordariales	0.95	1
C33	<i>Chaetomium</i> sp. C	99	MH633890	Sordariales	0.95	1
C52	<i>Chaetosphaeriales</i> sp. B	95	MH633891	Chaetosphaeriales	0.95	1
S125	<i>Tolypocladium</i> sp.	99	MH633892	Hypocreales	0.95	1
T87	<i>Cryptosporiopsis</i> sp.	99	MH633893	Helotiales	0.95	1
E49	<i>Hypocreales</i> sp.	99	MH633894	Hypocreales	0.95	1
C9	<i>Cylindrocarpon</i> sp.	99	MH633895	Hypocreales	0.95	1
S63	<i>Exophiala</i> sp.	100	MH633896	Chaetothyriales	0.95	1
T155	<i>Fusarium</i> sp. F	100	MH633897	Hypocreales	0.95	1
CP19	<i>Fusarium</i> sp. I	99	MH633898	Hypocreales	0.95	1
S127	<i>Gliomastix murorum</i>	99	MH633899	Hypocreales	0.95	1
C95	<i>Xylariales</i> sp. A	100	MH633900	Xylariales	0.95	1
E38	<i>Microdochium</i> sp. C	97	MH644806	Xylariales	0.95	1
C90	<i>Microdochium</i> sp. D	99	MH633901	Xylariales	0.95	1
S135	<i>Mortierella</i> sp. B	100	MH633902	Mortierellales	0.95	1
T166	<i>Nemania serpens</i>	99	MH633903	Xylariales	0.95	1
C54	<i>Neopestalopsis clavispota</i>	100	MH633958	Xylariales	0.95	1
S28	<i>Ophiosphaerella</i> sp. B	100	MH633959	Pleosporales	0.95	1
CP58	<i>Paraphaeosphaeria</i> sp. B	100	MH633960	Pleosporales	0.95	1
S84	<i>Penicillium</i> sp. H	100	MH633961	Eurotiales	0.95	1
C16	<i>Pleosporales</i> sp. D	99	MH633962	Pleosporales	0.95	1
C5	<i>Pleosporales</i> sp. E	97	MH633963	Pleosporales	0.95	1
C104	<i>Pleosporales</i> sp. G	98	MH633964	Pleosporales	0.95	1
C63	<i>Pleosporales</i> sp. H	99	MH633965	Pleosporales	0.95	1
E70	<i>Pleosporales</i> sp. J	99	MH633966	Pleosporales	0.95	1
C8	<i>Sporormiella australis</i>	99	MH633967	Pleosporales	0.95	1
S25	<i>Preussia</i> sp. A	97	MH633968	Pleosporales	0.95	1
C32	<i>Acrocalymma vagum</i>	99	MH633969	Incertae sedis	0.95	1
S110	<i>Scytalidium</i> sp.	99	MH633970	Helotiales	0.95	1
S111	<i>Serendipita vermifera</i>	98	MH633971	Sebacinales	0.95	1
C56	<i>Sordaria</i> sp.	100	MH633972	Sordariales	0.95	1
CP95	<i>Sordariomycetes</i> sp. B	100	MH633973	unknown	0.95	1
E6	<i>Stemphylium vesicarium</i>	99	MH633974	Pleosporales	0.95	1

Strain	Taxon	Identity to closest match (%)	ITS sequence accession number	Order	Incidence in plants (%)	Number of Populations
CP86	<i>Talaromyces</i> sp. B	99	MH633975	Eurotiales	0.95	1
C49	<i>Trichoderma rossicum</i>	99	MH633976	Hypocreales	0.95	1
S93	<i>Trichoderma spirale</i>	99	MH633977	Hypocreales	0.95	1
T139	<i>Ascomycota</i> sp. A	97	MH633978	unknown	0.95	1
C28	<i>Ascomycota</i> sp. C	98	MH644807	unknown	0.95	1
S71	<i>Ascomycota</i> sp. D	99	MH633979	unknown	0.95	1
S105	<i>Ascomycota</i> sp. F	100	MH633980	unknown	0.95	1
E26	<i>Ascomycota</i> sp. G	99	MH633981	unknown	0.95	1
C27	<i>Ascomycota</i> sp. H	99	MH633982	unknown	0.95	1
E63	<i>Metarhizium</i> sp.	100	MH633983	unknown	0.95	1
CP66	<i>Clavicipitaceae</i> sp. B	98	MH633984	unknown	0.95	1
C67	<i>Ascomycota</i> sp. I	98	MH633985	unknown	0.95	1
S88	<i>Mortierella</i> sp. C	100	MH633986	unknown	0.95	1
E78	<i>Sordariomycetes</i> sp. C	99	MH633987	Glomerellales	0.95	1
CP96	<i>Xylaria</i> sp.	100	MH633988	Xylariales	0.95	1
CP45	<i>Xylariaceae</i> sp.	100	MH633989	Xylariales	0.95	1
E60	<i>Chaetosphaeriaceae</i> sp. B	99	MH633990	Chaetosphaeriales	0.95	1

**Supplementary Table 2.** Radial growth endophytic strains from *Festuca rubra* subsp. *pruinosa* roots grown in PDA plates with different NaCl concentrations. Different letters within each row indicate significant differences at  $p < 0.05$ .

Strain	Taxon	Radial growth (cm)			Type of response
		0 mM	300 mM	600 mM	
E5	<i>Alternaria sp. A</i>	4.52 a	5.82 b	5.62 b	Halophilic
S41	<i>Alternaria sp. B</i>	3.83 a	5.58 b	5.05 c	Halophilic
S32	<i>Diaporthe sp. A</i>	5.92 a	7.50 b	6.77 c	Halophilic
CP36	<i>Diaporthe sp. A</i>	1.83 a	4.98 b	5.43 c	Halophilic
S129	<i>Diaporthe sp. C</i>	4.65 a	6.60 b	6.20 b	Halophilic
T95	<i>Fusarium sp. A</i>	4.52 a	6.42 b	5.63 c	Halophilic
S13	<i>Fusarium sp. A</i>	2.23 a	5.50 b	4.03 c	Halophilic
T112	<i>Fusarium sp. A</i>	3.20 a	7.43 b	6.17 c	Halophilic
C70	<i>Fusarium sp. B</i>	2.23 a	6.83 b	4.08 c	Halophilic
S38	<i>Fusarium sp. B</i>	4.90 a	6.87 b	6.57 b	Halophilic
CP8	<i>Fusarium oxysporum</i>	5.53 a	7.12 b	7.25 b	Halophilic
S10	<i>Fusarium oxysporum</i>	5.40 a	7.17 b	6.65 c	Halophilic
T150	<i>Fusarium oxysporum</i>	5.43 a	7.50 b	7.30 b	Halophilic
C44	<i>Helotiales sp. A</i>	4.98 a	6.10 b	6.30 b	Halophilic
E79	<i>Helotiales sp. B</i>	4.68 a	7.92 b	7.47 c	Halophilic
T59	<i>Penicillium sp. A</i>	3.67 a	7.02 b	6.93 b	Halophilic
CP17	<i>Trichoderma sp. B</i>	5.70 a	7.33 b	6.58 c	Halophilic
S7	<i>Darksidea sp.</i>	2.18 a	2.25 a	3.02 b	Halophilic
T50	<i>Drechslera sp.</i>	6.67 a	6.55 a	7.30 b	Halophilic
T6	<i>Fusarium sp. A</i>	3.82 a	4.07 a	6.57 b	Halophilic
T114	<i>Penicillium sp. F</i>	5.60 a	5.73 a	7.32 b	Halophilic
EB4	<i>Diaporthe sp. A</i>	3.03 a	2.47 b	6.43 c	Halophilic
T18	<i>Diaporthe sp. A</i>	4.45 a	3.50 b	5.78 c	Halophilic
E7	<i>Penicillium sp. A</i>	6.65 a	6.07 b	7.20 c	Halophilic



Strain	Taxon	Radial growth (cm)			Type of response	
		0 mM	300 mM	600 mM		
S115	<i>Alternaria sp. B</i>	5.20 a	5.80 b	5.52 ab	Halophilic	
T140	<i>Alternaria sp. C</i>	5.30 a	6.10 b	5.35 a	Halophilic	
C66	<i>Diaporthe sp.A</i>	4.87 a	5.88 b	4.68 a	Halophilic	
C13	<i>Penicillium sp. A</i>	4.47 a	4.72 b	4.38 a	Halophilic	
T49	<i>Periconia macrospinoso</i>	4.92 a	5.97 b	5.00 a	Halophilic	
T16	<i>Alternaria sp. A</i>	4.07 a	5.13 b	3.02 c	Halophilic	
C2	<i>Dactylonectria alcacerensis</i>	6.35 a	7.55 b	5.28 c	Halophilic	
T141	<i>Helotiales sp. A</i>	5.83 a	6.65 b	5.07 c	Halophilic	
E71	<i>Penicillium sp. A</i>	6.43 a	7.05 b	5.72 c	Halophilic	
C1	<i>Darksidea sp.</i>	1.33 a	1.83 a	1.57 a	Halotolerant	
E74	<i>Lachnum sp.</i>	1.65 a	1.58 a	1.42 a	Halotolerant	
T128	<i>Helotiales sp. A</i>	6.35 a	6.13 a	5.80 a	Halotolerant	
S69	<i>Diaporthe sp.A</i>	5.12 ab	6.01 a	4.45 b	Halosensitive	
T90	<i>Codinaeopsis sp.</i>	5.03 a	5.03 a	3.43 b	Halosensitive	
S75	<i>Helotiales sp.A</i>	6.23 a	6.08 a	4.82 b	Halosensitive	
E54	<i>Penicillium sp. F</i>	5.48 a	5.71 a	5.03 b	Halosensitive	
T131	<i>Periconia macroespinosa</i>	6.77 a	7.25 a	6.00 b	Halosensitive	
S96	<i>Trichoderma sp. B</i>	6.15 a	6.23 a	4.66 b	Halosensitive	
S5	<i>Slopeiomyces cylindrosporus</i>	7.50 a	7.25 a	1.18 b	Halosensitive	
T70	<i>Slopeiomyces cylindrosporus</i>	3.62 a	3.78 a	2.42 b	Halosensitive	
T41	<i>Drechslera sp.</i>	6.17 a	5.87 b	5.17 b	Halosensitive	
C43	<i>Slopeiomyces cylindrosporus</i>	4.18 a	3.12 b	2.68 c	Halosensitive	

