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Title	Effects of biochar and litter on water relations of Japanese black pine (Pinus thunbergii) seedlings
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Table 1

Results of DNA identification based on BLAST research

Identified species	Accession No.	Query cover
Wilcoxina mikolae	LC029799	99%
Amphinema sp.	LC029800	99%
Russula sp.	LC029801	95%
Suillus granulatus	LC029803	99%
Russula densifolia	LC029801	95%

DNA samples were obtained from taxonomic classification based on the morphology of root tips.

Table 2

Mean (±SE) species dominance ratio (P_S, %) and ectomycorrhizal symbiosis rate (R_E, %)

	Wilcoxina mikolae	*Amphinema* sp.	*Russula* sp.	*Suillus grandulatus*	*Rhizopogon roselus*	Unknown	R_E
Control	84.5±6.2	0.9±0.5	1.9±0.3	0.0±0.0	0.0±0.0	0.0±0.0	99.0±0.3
Biochar	71.0±17.3	20.1±18.3	2.5±0.8	3.1±3.1	0.1±0.1	2.2±2.2	99.9±0.1
Litter	92.1±3.6	5.0±3.1	1.4±0.8	0.0±0.0	0.0±0.0	0.0±0.0	98.5±0.8
Biochar + Litter	93.2±2.3	2.1±1.9	3.3±0.7	0.0±0.0	0.5±0.5	0.0±0.0	99.1±0.3

Effects of biochar and litter were not detected on P_S and R_E.

Table 3

Mean (±SE) needle and soil nitrogen (N) content (mg N g^{-1})

	Needle N content	Soil N content
Control	15.46 ±0.96	0.18 ±0.01 ^{A}
Biochar	14.00 ±1.11	0.21 ±0.01 ^{A}
Litter	17.83 ±1.31	0.17 ±0.01 ^{AB}
Biochar + Litter	17.00 ±1.18	0.23±0.01 ^{B}

Different letters indicate statistical difference ($p < 0.05$).

Table 4

Mean (±SE) organ dry weight, mean final stem base diameter (SBD) and height

	Final SBD (mm)	**Final height (cm)**	**Needle** (g)	**Bud** (g)	**Branch** (g)	**Stem** (g)
Control	10.1±0.1 ^{A}	36.3±2.9 ^{A}	8.6±1.0	0.4±0.1 ^{AB}	1.0±0.3	6.4±0.6 ^{A}
Biochar	10.1±0.4 ^{A}	34.8±1.8 ^{A}	7.5±1.6	0.4±0.0 ^{AB}	1.4±0.2	6.5±1.0 ^{A}
Litter	10.1±0.3 ^{A}	38.8±2.1 ^{AB}	9.5±0.4	0.6±0.0 ^{A}	1.6±0.3	6.5±0.4 ^{A}
Biochar + Litter	7.5±0.2 ^{B}	27.7±0.8 ^{B}	9.6±0.6	0.2±0.1 ^{B}	0.6±0.12	3.7±0.2 ^{B}

Different letters indicate statistical difference ($p < 0.05$).

Table 5

Mean (±SE) fine, coarse root dry weight, relative fine root and above-/below-ground ratio

	Fine root (g)	**Coarse root** (g)	**Relative fine root (%)**	**Above/ below ratio**
Control	0.7±0.1 ^{A}	11.28±1.61 ^{A}	2.57±0.37 ^{A}	1.43±0.24 ^{AB}
Biochar	1.4±0.1 ^{B}	10.95±1.12 ^{AB}	5.18±0.69 ^{B}	1.25±0.07 ^{B}
Litter	0.7±0.1 ^{A}	10.90±0.93 ^{AB}	2.29±0.32 ^{A}	1.59±0.13 ^{AB}
Biochar + Litter	0.8±0.1 ^{A}	6.28±0.89 ^{B}	3.79±0.46 ^{AB}	2.06±0.26 ^{A}

Relative fine root was obtained by dividing the fine root biomass by the total root biomass and the above-/below-ground ratio was obtained by dividing the total above-ground ratio by the total root biomass. $n = 4$ for each treatment. Different letters indicate statistical difference ($p < 0.05$).