

1 **Supplementary Materials**

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3 **Inoculation of Bacteria for the Bioremediation of Heavy**

4 **Metals Contaminated Soil by *Agrocybe aegerita***

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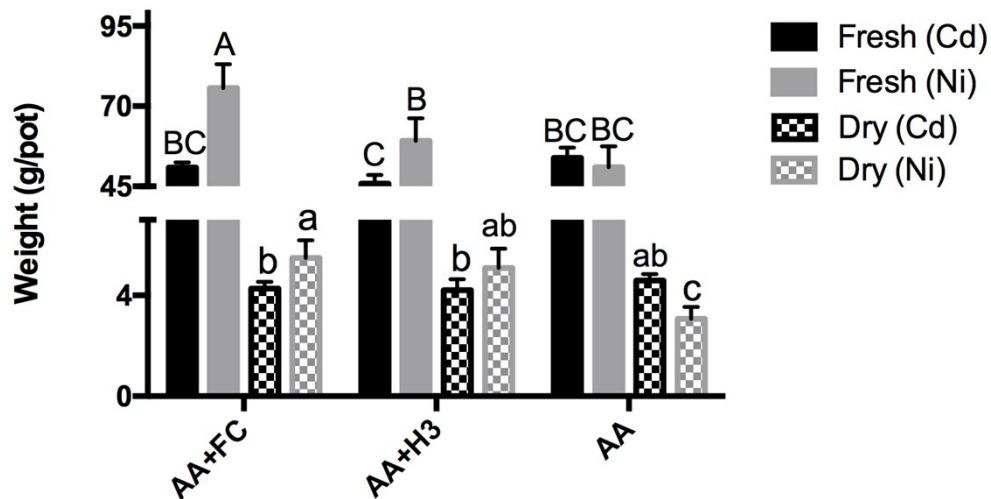
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24 **Supplementary Figure 1.** Biomass (both fresh and dry weight; g/pot) of *Agrocybe*
 25 *aegerita* growing in soil of different treatments under single Cd or Ni stress. Error
 26 bars represent the standard deviation of three sampled pots. Different letters in
 27 lowercase (a, b and c) indicate significant ($P < 0.05$) difference among dry weights.
 28 Capital letters (A, B and C) indicate significant ($P < 0.05$) difference among fresh
 29 weights.

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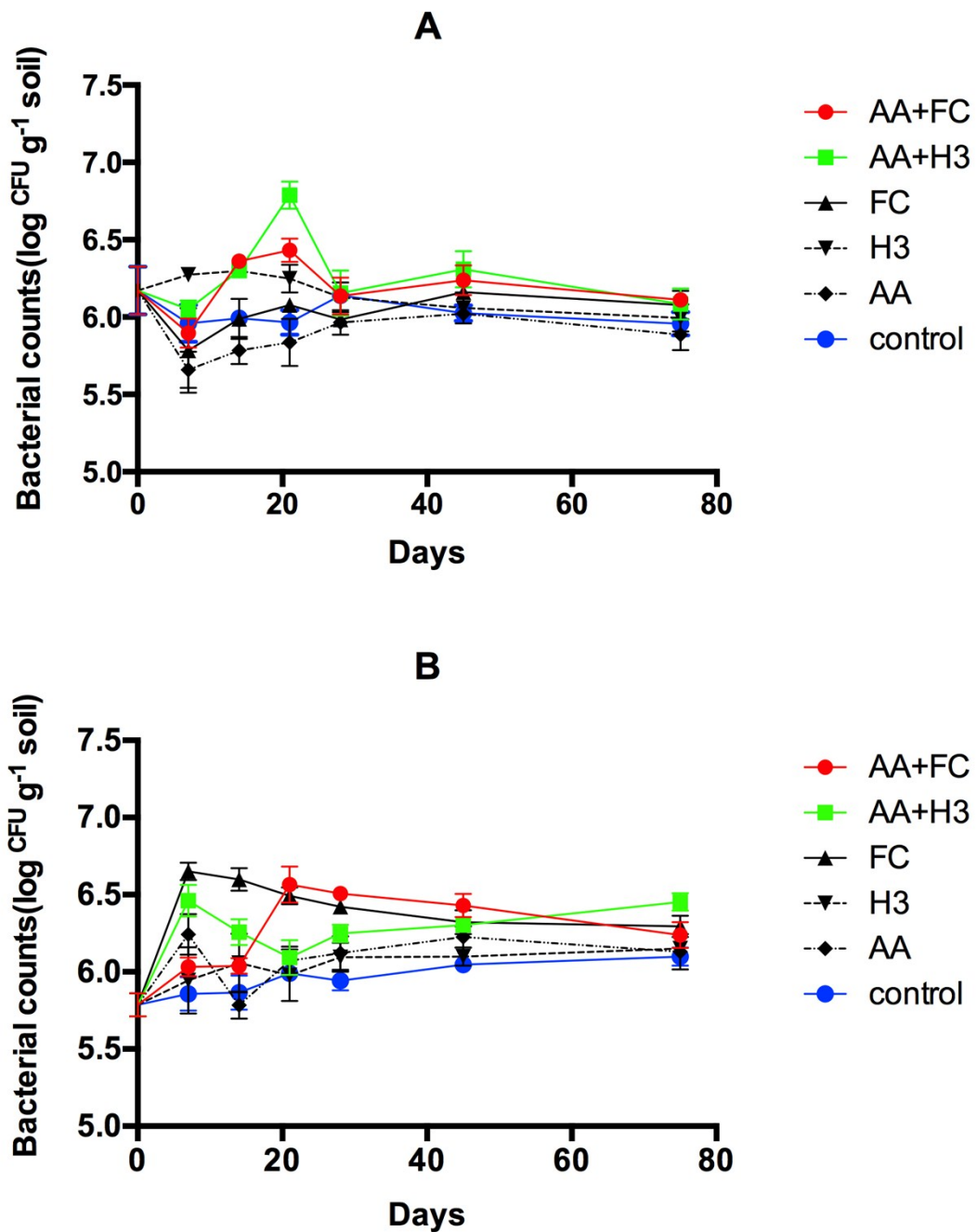
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48 **Supplementary Figure 2.** Bacterial counts in individual Cd (A) or Ni (B)

49 contaminated soil of different treatments. Error bars represent the standard deviation
 50 of three sampled pots.

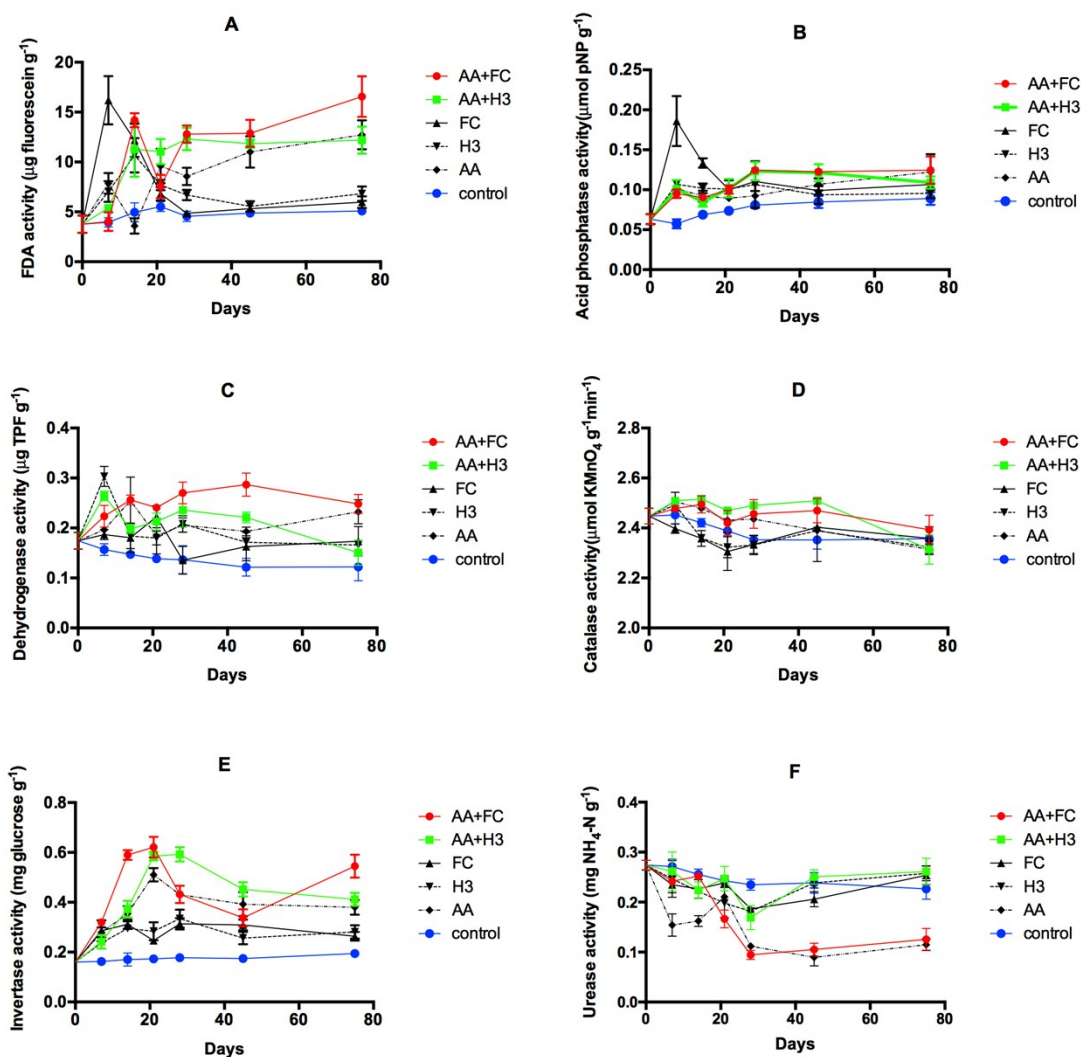
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58 **Supplementary Figure 3.** Activities of soil enzymes in Cd contaminated soils of
 59 different treatments. **A:** FDA activity, **B:** acid phosphatase activity, **C:** dehydrogenase
 60 activity, **D:** catalase activity, **E:** invertase activity, **F:** urease activity. Error bars
 61 represent the standard deviation of three sampled pots.

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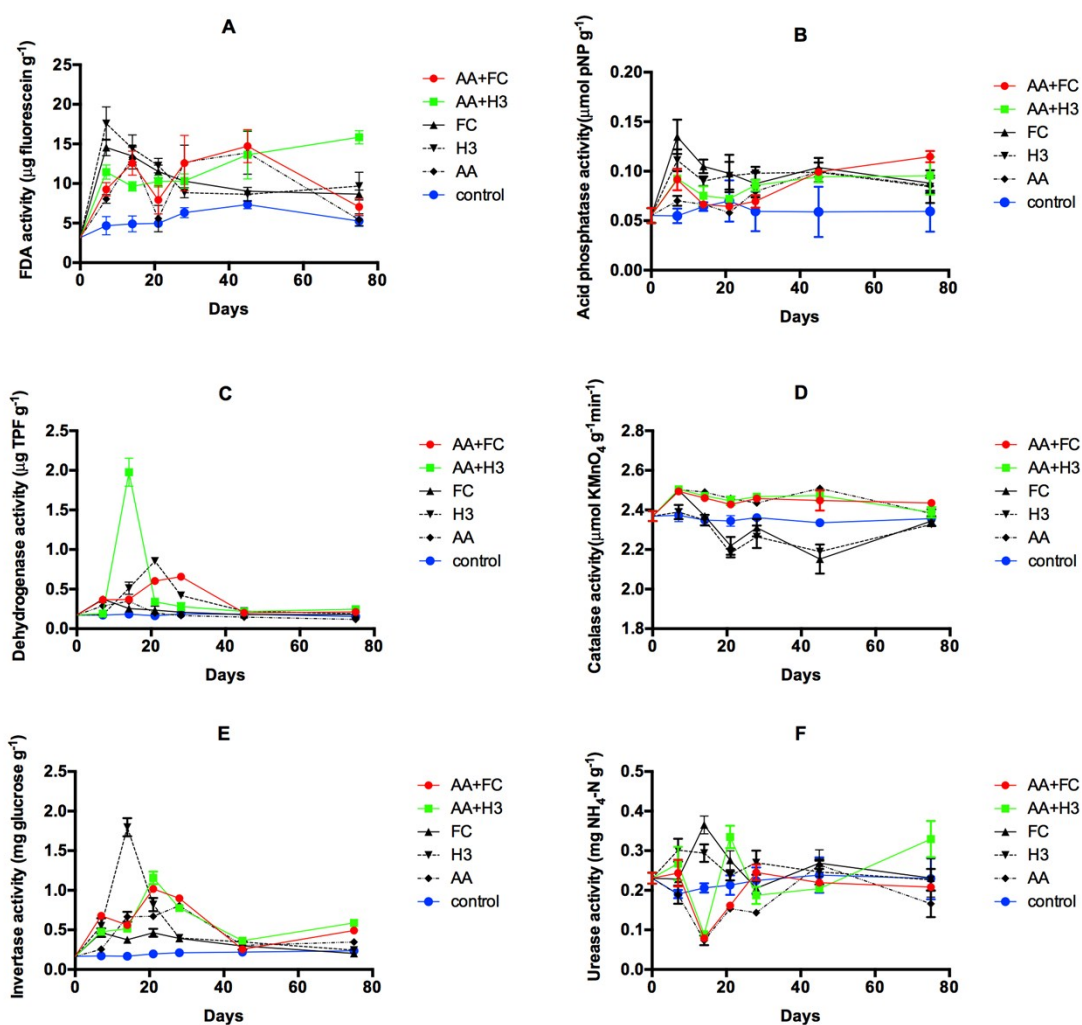
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72 **Supplementary Figure 4.** Activities of soil enzymes in Ni contaminated soils of
 73 different treatments. **A:** FDA activity, **B:** acid phosphatase activity, **C:** dehydrogenase
 74 activity, **D:** catalase activity, **E:** invertase activity, **F:** urease activity. Error bars
 75 represent the standard deviation of three sampled pots.

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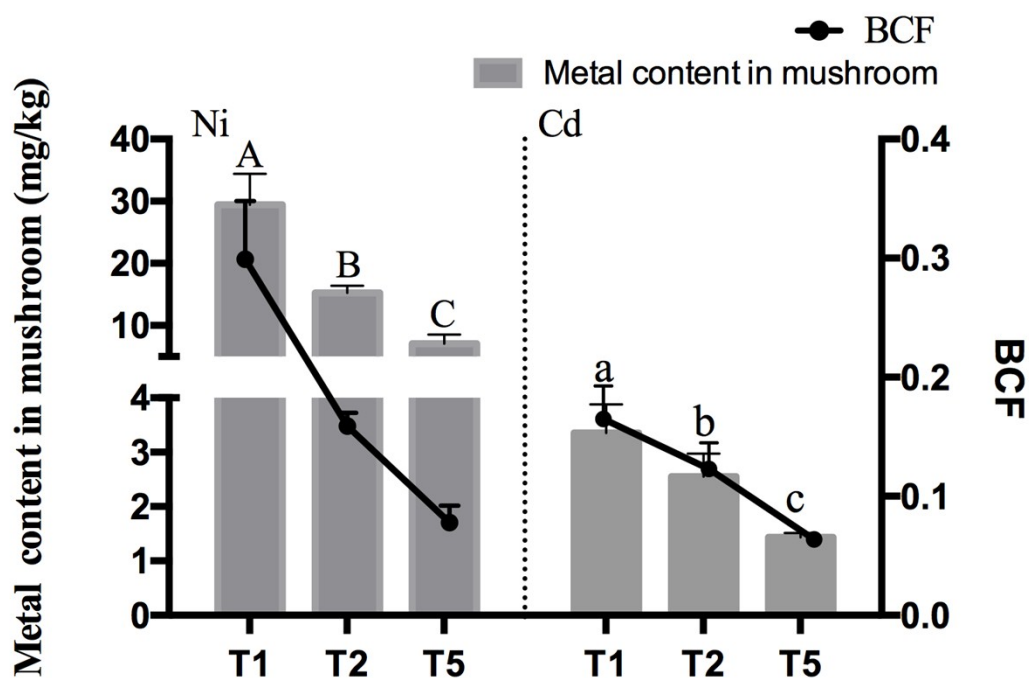
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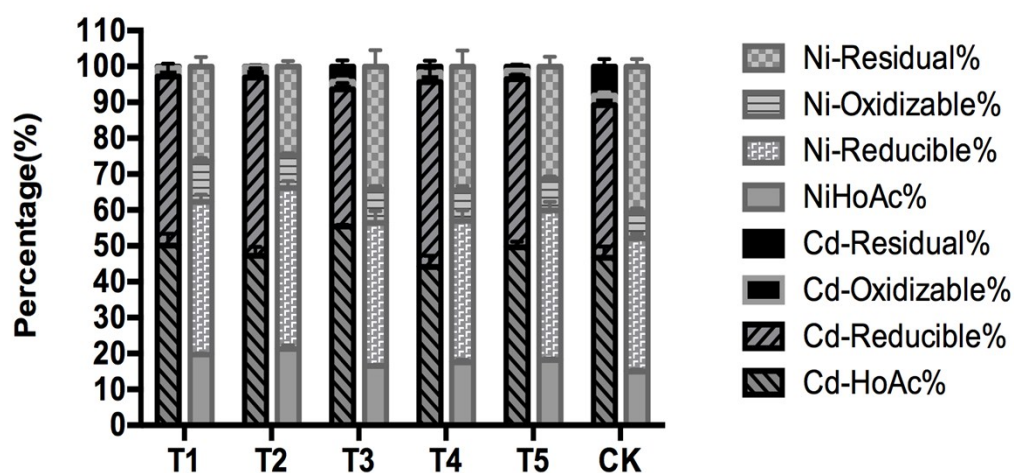
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87 **Supplementary Figure 5.** Metal concentrations (column) in *Agrocybe aegerita* and
 88 bio-concentration factor (BCF) (line) in individual Cd or Ni contaminated soil of
 89 different treatments. Error bars represent the standard deviation of three sampled pots.
 90 Different letters in lowercase (a, b and c) indicate significant ($P < 0.01$) difference of
 91 Cd content in mushroom among different treatments. Capital letters (A, B and C)
 92 indicate significant ($P < 0.01$) difference of Ni content in mushroom among different
 93 treatments.

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105 **Supplementary Figure 6.** Metal speciation in individual Cd or Ni contaminated soil

106 of different treatments.

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127 **Supplementary Table 1.** The Pearson correlation coefficient between bacterial

128 counts and activities of soil enzymes in Cd contaminated soil

Characters	T1	T2	T3	T4	T5	CK
Acid phosphatase	-0.068	-0.038	-0.728**	0.088	-0.314	0.022
FDA	0.218	0.253	-0.736**	0.425	-0.09	-0.510*
Dehydrogenase	0.268	-0.009	0.127	0.284	-0.228	0.105
Catalase	-0.158	0.235	0.156	0.222	-0.236	0.175
Invertase	0.276	0.308	-0.35	0.008	-0.253	-0.267
Urease	-0.088	-0.047	0.29	-0.164	0.226	0.033

129 *. Correlation is significant at the 0.05 level.

130 **. Correlation is significant at the 0.01 level.

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141 **Supplementary Table 2.** The Pearson correlation coefficient between bacterial

142 counts and activities of soil enzymes in Ni contaminated soil

Characters	T1	T2	T3	T4	T5	CK
Acid phosphatase	0.19	0.794**	0.847**	0.41	0.567**	0.139
FDA	0.483*	0.837**	0.960**	0.05	0.212	0.599**
Dehydrogenase	0.582**	0.057	0.629**	0.069	-0.329	-0.143
Catalase	0.241	0.504*	0.145	-0.257	0.324	-0.467*
Invertase	0.600**	0.129	0.791**	0.061	-0.091	0.439*
Urease	0.033	0.121	0.329	-0.177	0.393	0.196

143 *. Correlation is significant at the 0.05 level.

144 **. Correlation is significant at the 0.01 level.

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