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Supporting information

Table S1. Organic amendment composition of Sludge waste treatment (SL) in % from different waste materials.

DESCRIPTION	LER CODE	%
Part of urban and similar waste not destined for compost	190501	40 - 45
Digested product from the anaerobic treatment of municipal waste	190604	40 - 45
Cleaning and cleaning sludge	020101	5 - 7
Scraps of bark and cork	030101	5 - 7
Fiber and sludge waste containing fibers, fillers and coating products generated by mechanical separation processes	030310	5 - 7

Table S2. Organic amendment composition of chicken manure treatment (CHI) in % of different manure materials.

DESCRIPTION	LER CODE	%
Animal feces, urine and manure (including used litter), effluent, collected separately and treated off-site	020106	30 -35
Biodegradable waste of kitchens and canteens	200108	12-15
Sludge produced by urban wastewater treatment	190805	5 -15
Sludges from on-site effluent treatment other than those mentioned in 03 03 10	030311	5 -15
Waste unusable for consumption or processing	020304	10 -12
Scraps of bark and cork	030301	5 -10
Sludges from on-site effluent treatment	020502	5 -8
Scraps of animal tissues	020102	2 -4
Sludges from on-site effluent treatment	020204	1 -3
Waste unusable for consumption or transformation	020203	1 -3
Sludges from other industrial wastewater treatment other than those mentioned in 19 08 13	190814	1 -3

Table S3. Mineral composition of maize plants of control group, SL treatment, CHI treatment under two watering conditions (WW and WS) Values are means (n = 4) ± S.D. Within treatments, means for each parameter followed by different letter are significantly different Pos Hoc Tukey ($P \leq 0.05$).

Treatment	Control		SL		CHI	
Water	WW	WS	WW	WS	WW	WS
Al (mg/Kg)	94.6±43.5a	42.84±26.2a	37.88±34.8a	39.65±23.9a	92.94±66.3a	79.6±24.5a
B (mg/Kg)	5.35±0.76bc	4.09±0.88c	7.04±2.26bc	8.35±1.7abc	13.17±2.56a	9.33±3ab
Ca (g/100g)	0.92±0.07a	0.84±0.14ab	0.5±0.04c	0.59±0.1c	0.65±0.05bc	0.61±0.05bc
Cd (mg/Kg)	0.04±0.02a	0.03±0.01a	0.06±0.02a	0.15±0.12a	0.06±0.01a	0.05±0.10a
Cr (mg/Kg)	2.26±0.87a	1.2±0.46a	1.85±2.31a	0.84±0.26a	5.49±6.10a	5.56±4.47a
Cu (mg/Kg)	3.23±0.31bc	2.89±0.19c	4.15±0.61abc	4.3±0.52ab	4.68±0.9a	4.32±0.29ab
Fe (mg/Kg)	117±67.7a	49.49±11.8a	51.42±16.4a	66.8±26.7a	114±61.9a	95.6±35.4a
K (g/100g)	4.30±0.35ab	4.12±0.40b	4.27±0.41ab	4.98±0.4a	4.4±0.17ab	4.61±0.37ab
Mg (g/100g)	0.19±0.01ab	0.16±0.01b	0.16±0.01b	0.16±0.02b	0.23±0.02a	0.23±0.03a
Mn (mg/Kg)	46.7±2.48b	48.8±6.04b	37.1±4.19b	44.4±6.22b	106±20.5a	89.8±22.1a
Mo (mg/Kg)	1.47±0.20b	2.03±0.4a	0.71±0.19c	1.14±0.41bc	0.9±0.13bc	0.91±0.31bc
Na (g/100g)	0.01±0.01b	0.01±0.01b	0.08±0.03b	0.06±0.04b	0.4±0.1a	0.25±0.08a
P (g/100g)	0.24±0.02b	0.24±0.06b	0.17±0.01b	0.16±0.02b	0.60±0.10a	0.66±0.13a
Rb (mg/Kg)	7.93±1.35a	7.05±0.25[a]	4.2±0.28b	4.88±0.53b	4.81±0.3b	5.04±0.23b
Si (mg/Kg)	594±244a	1233±423[a]	1199±247a	916±130a	951±403a	676±135a
S (g/100g)	0.09±0.01d	0.08±0.01d	0.20±0.03c	0.020±0.01bc	0.33±0.05a	0.29±0.07ab
Sr (mg/Kg)	23.9±1.94a	21.2±3.69ab	14.9±1.28c	17.1±2.98bc	17.1±1.27bc	16.7±1.16bc
Ti (mg/Kg)	3.48±1.19a	1.88±0.55[a]	1.88±0.9a	1.72±0.50a	3.44±1.93a	2.95±0.68a
Tl (mg/Kg)	1.66±0.30a	1.38±0.43[a]	1.21±0.35a	1.35±0.39a	1.62±0.55a	1.42±0.34a
Zn (mg/Kg)	18.2±3.59b	16.8±2.81b	25.9±2.31ab	28.9±3.52ab	37.67±7.68a	40.0±9.47a

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Table S4. Mineral composition of the two amendments used in the experiment. Values are means (n = 4) ± S.E.

	SL	CHI
Al (g/100g)	1.01 ± 0.07	2.26 ± 0.08
As (mg/Kg)	4.13 ± 1.35	2.32 ± 0.12
Be (mg/Kg)	0.28 ± 0.02	0.25 ± 0.03
B (mg/Kg)	31.57 ± 3.04	18.15 ± 0.45
Ca (g/100g)	10.44 ± 1.20	8.44 ± 0.36
Cd (mg/Kg)	1.41 ± 0.13	1.00 ± 0.01
Co (mg/Kg)	4.60 ± 1.30	0.70 ± 0.27
Cr (mg/Kg)	43.3 ± 2.7	121.1 ± 1.4
Cu (mg/Kg)	157.3 ± 16.5	120.4 ± 3.3
Fe (g/100g)	0.98 ± 0.14	0.79 ± 0.05
K (g/100g)	1.66 ± 0.14	0.96 ± 0.03
Li (mg/Kg)	11.65 ± 1.18	7.05 ± 0.40
Mg (g/100g)	0.87 ± 0.09	0.58 ± 0.02
Mn (mg/Kg)	429.9 ± 37.6	272.5 ± 4.7
Mo (mg/Kg)	3.45 ± 0.13	3.20 ± 0.09
Na (g/100g)	1.51 ± 0.14	5.12 ± 0.2
Ni (mg/Kg)	25.18 ± 1.41	32.21 ± 0.76
Pb (mg/Kg)	64.75 ± 5.88	40.24 ± 0.75
P (g/100g)	1.13 ± 0.12	1.37 ± 0.04
Rb (mg/Kg)	22.11 ± 1.69	16.99 ± 1.26
Se (mg/Kg)	<0.01	1.53 ± 0.04
Si (mg/Kg)	273.8 ± 54.1	346.1 ± 29.3
S (g/100g)	1.60 ± 0.13	4.24 ± 0.18
Sr (mg/Kg)	234.7 ± 58.1	172.6 ± 3.3
Ti (mg/Kg)	133.6 ± 38.0	153.1 ± 8.3
Tl (mg/Kg)	5.90 ± 1.55	4.30 ± 0.72
V (mg/Kg)	11.72 ± 0.55	19.17 ± 0.81
Zn (mg/Kg)	537.8 ± 44.9	389.0 ± 5.3

Table S5. List of different amino acids concentration in leaf of maize plants of control group, SL treatment, CHI treatment under two watering conditions (WW and WS). asparagine (Asp), glutamine (Glu), serine (Ser), glycine (Gly), alanine (Ala), arginine (Arg), proline (Pro), tyrosine (Tyr), valine (Val), isoleucine (Ile), leucine (Leu), phenylalanine (Phe) methionine (Met) ácido γ-aminobutírico (GABA). Values are means (n = 4) ± S.E. Within treatments, means for each parameter followed by different letter are significantly different Pos Hoc Tukey (P ≤ 0.05). ANOVA: ns not significant; *P ≤ 0.05; ** P ≤ 0.01; ***P ≤ 0.001.

	Control		SL		CHI		Anova		
Aminoacid	**WW**	**WS**	**WW**	**WS**	**WW**	**WS**	**T**	**W**	**TxW**
Asp	0.36±0.005bc	0.35±0.005c	0.41±0.008a	0.39±0.01ab	0.40±0.01a	0.39±0.003ab	***	*	ns
Glu	0.39±0.018c	0.49±0.061bc	0.56±0.033ab	0.66±0.015a	0.60±0.02ab	0.55±0.011ab	***	ns	*
ser	0.24±0.005b	0.32±0.048b	0.29±0.007b	0.57±0.055a	0.27±0.003b	0.33±0.019b	***	***	**
Gly	0.23±0.005b	0.29±0.02b	0.28±0.013b	0.48±0.076a	0.27±0.009b	0.36±0.038ab	**	**	ns
Ala	1.65±0.144c	2.04±0.273bc	4.56±0.316a	5.3±1.68ab	3.62±0.264bc	6.38±0.86a	**	*	ns
Arg	0.27±0.003b	0.28±0.007b	0.28±0.004b	0.32±0.004a	0.28±0.006b	0.27±0.008b	***	*	**
GABA	0.28±0.016ab	0.26±0.02ab	0.28±0.002ab	0.31±0.002a	0.27±0.011ab	0.26±0.01b	*	ns	ns
Pro	0.05±0.005b	0.12±0.04ab	0.27±0.092ab	0.47±0.185a	0.05±0.005b	0.06±0.009b	*	*	*
Tyr	0.36±0.005b	0.38±0.02ab	0.36±0.007b	0.42±0.011a	0.36±0.004b	0.35±0.002b	**	ns	ns
Val	0.14±0.003b	0.18±0.024b	0.16±0.001b	0.25±0.013a	0.15±0.001b	0.15±0.002b	***	***	**
Met	0.23±0.002	0.22±0.001	0.23±0.004	0.22±0.004	0.23±0.002	0.22±0.002	ns	ns	ns
Ile	0.25±0.003b	0.27±0.018b	0.25±0.003b	0.32±0.01a	0.25±0.003b	0.24±0.001b	**	***	**
Leu	0.24±0.003b	0.27±0.022b	0.25±0.004b	0.34±0.007a	0.25±0.005b	0.25±0.002b	***	***	**
Phe	0.30±0.003b	0.31±0.009b	0.30±0.004b	0.35±0.005a	0.31±0.004b	0.3±0.002b	**	**	***
total	5.11±0.19b	6.00±0.537b	8.67±0.774ab	10.71±1.87a	7.49±0.264ab	10.39±0.91a	**	*	ns

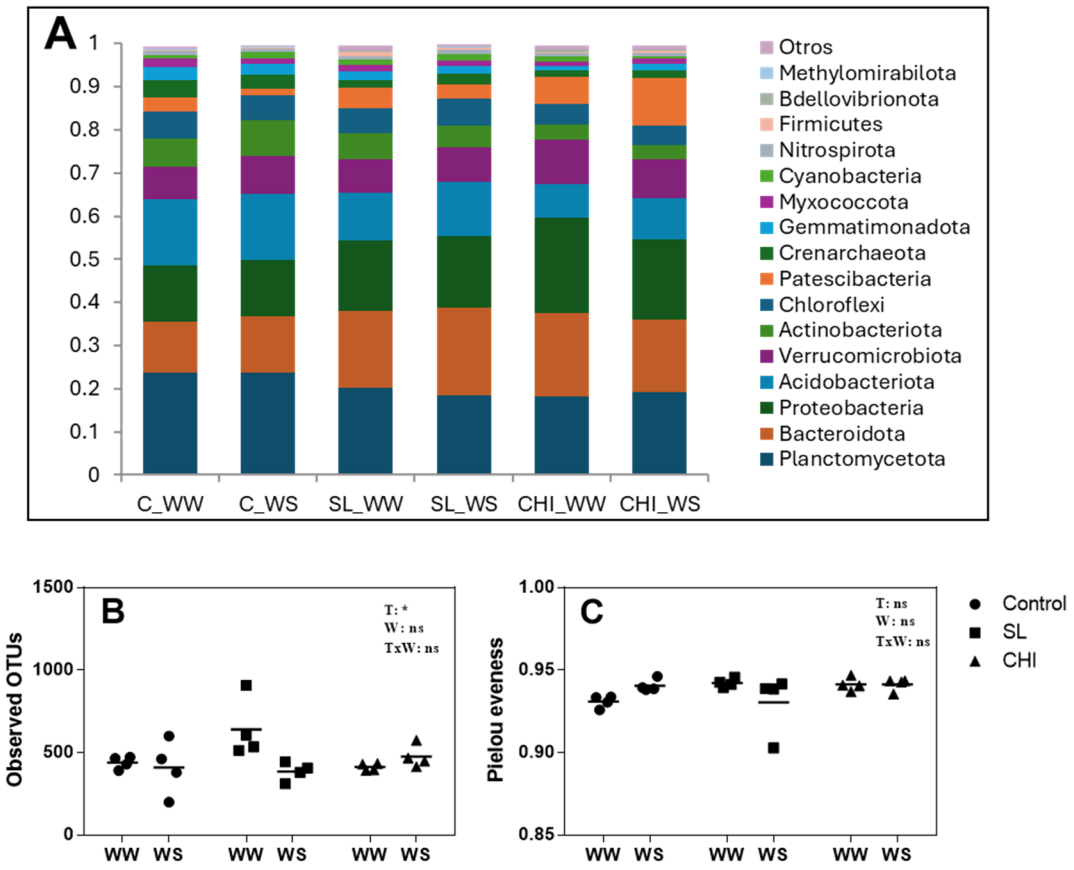

Figure S1. Bar plot of the relative abundance (A), alpha diversity richness (B) and Pielou eveness (C) of bacteria phyla of control group (circle), sludge amendment (square), and chicken manure treatment (triangle) dots under two watering conditions (WW and WS). Pos Hoc Tukey (P ≤ 0.05). ANOVA effects represent P-value for amendment effect (T), watering conditions (W) and their interaction (TxW). ns not significant; Post-Hoc Tukey *P ≤ 0.05; **P ≤ 0.01; ***P ≤ 0.001.

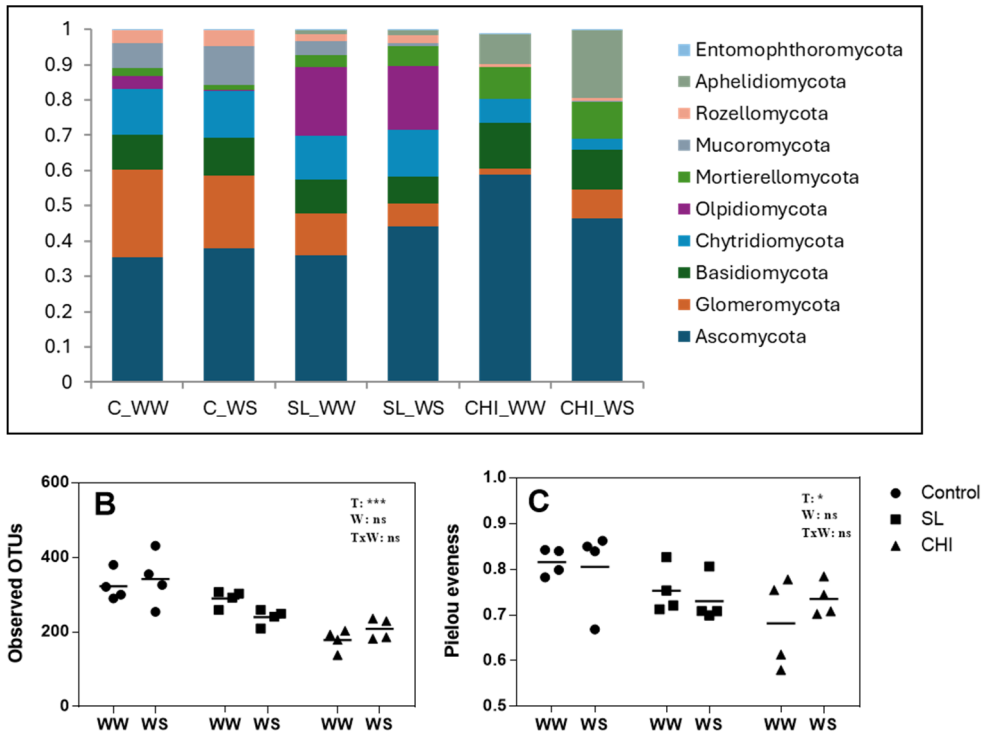

Figure S2. Bar plot of the relative abundance (A), alpha diversity richness (B) and Pielou eveness (C) of fungi phyla of control group (circle), sludge amendment (square), and chicken manure treatment (triangle) dots under two watering conditions (WW and WS). Pos Hoc Tukey (P ≤ 0.05). ANOVA effects represent P-value for amendment effect (T), watering conditions (W) and their interaction (TxW). ns not significant; Post-Hoc Tukey *P ≤ 0.05; **P ≤ 0.01; ***P ≤ 0.001.