Figure S1. Cumulative NH_3-N emissions from the 7th to 8th day (mean ± standard error; n = 3). Results marked with similar lowercase letters are not significantly different. Control is digestate without conditioner; H_2O_2, H_2SO_4 and H_3PO_4 represent pure-form acids applied mixed into the digestate; BC is biochar; BC+H_2O_2, BC+H_2SO_4 and BC+H_3PO_4 represent BC acidified with the respective acid; BCm indicates that the BC was mixed with the digestate and BCs indicates that the BC was applied to the digestate surface.

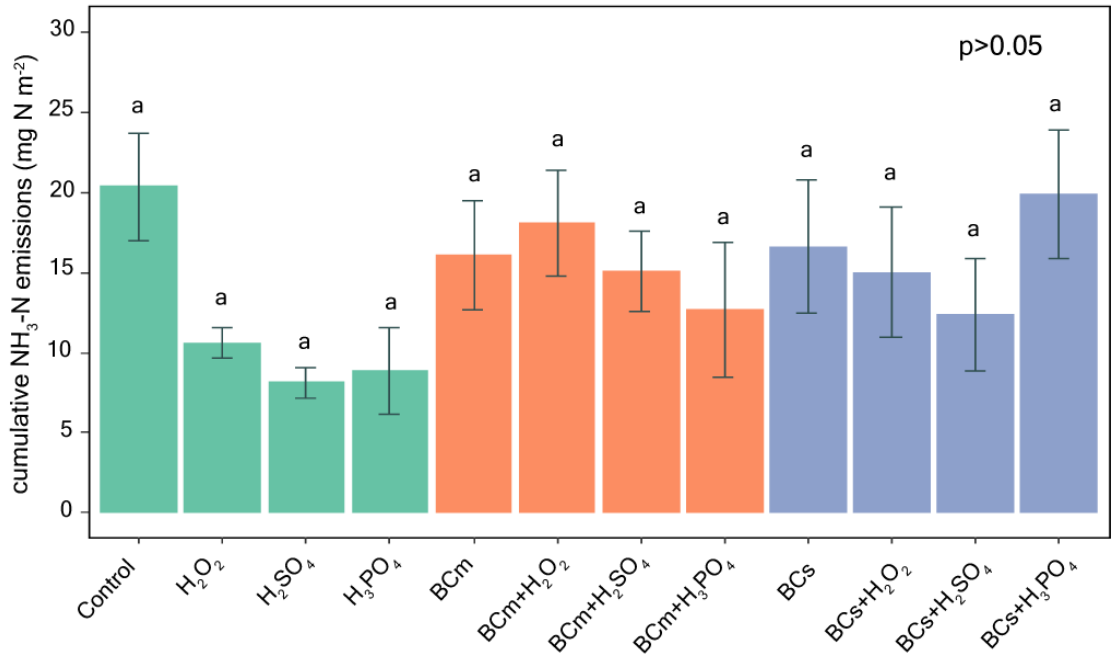

Figure S2. PCA1 and PCA2 of FTIR spectra for untreated and acidified biochar (BC) amendments. BC+H_2O_2, BC+H_2SO_4 and BC+H_3PO_4 represent BC acidified with the respective acid.

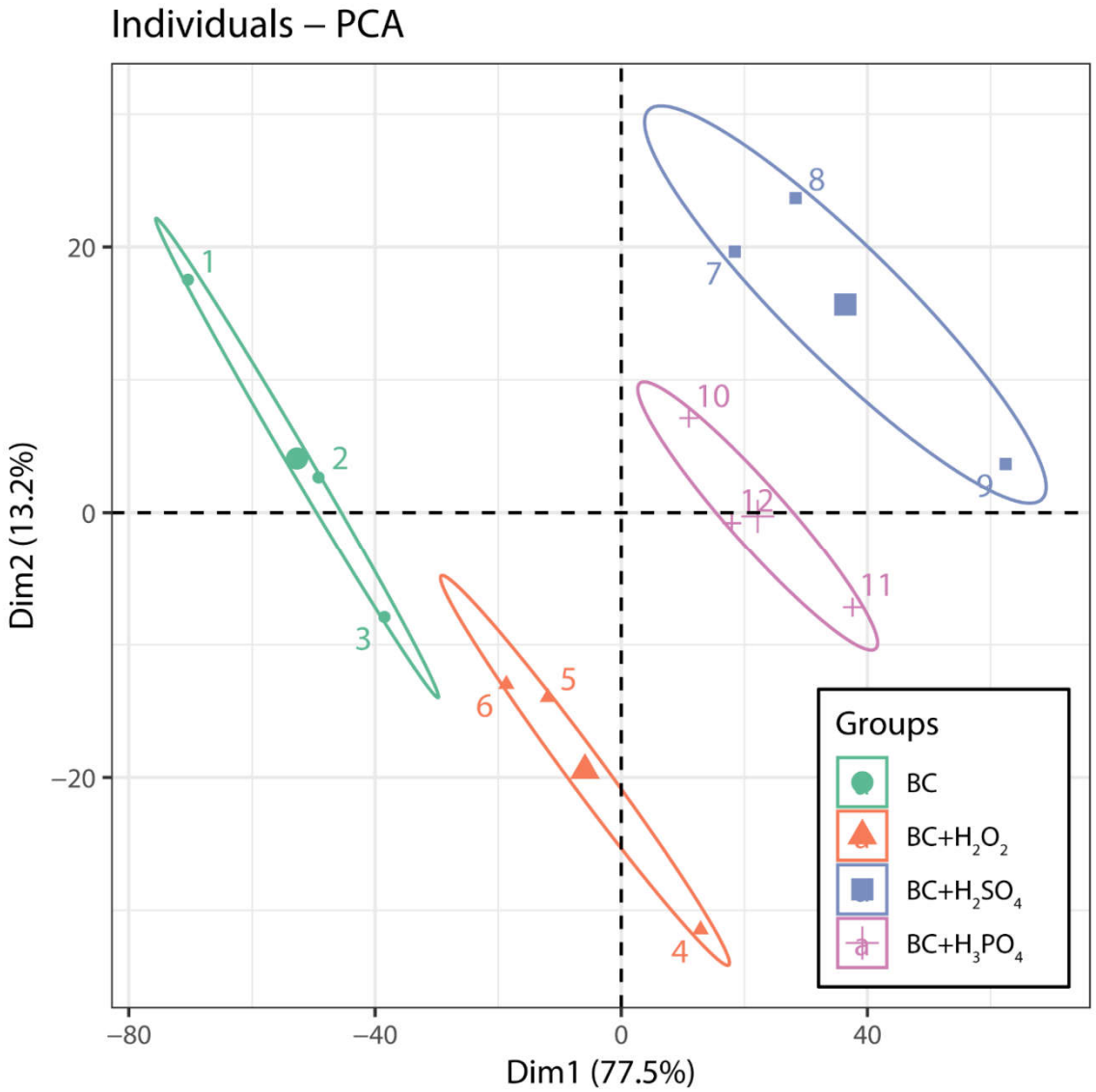

Figure S3. Eigenvectors and wavenumber values for principal components 1 and 2 (PC1 and PC2, respectively) of the FTIR spectra.

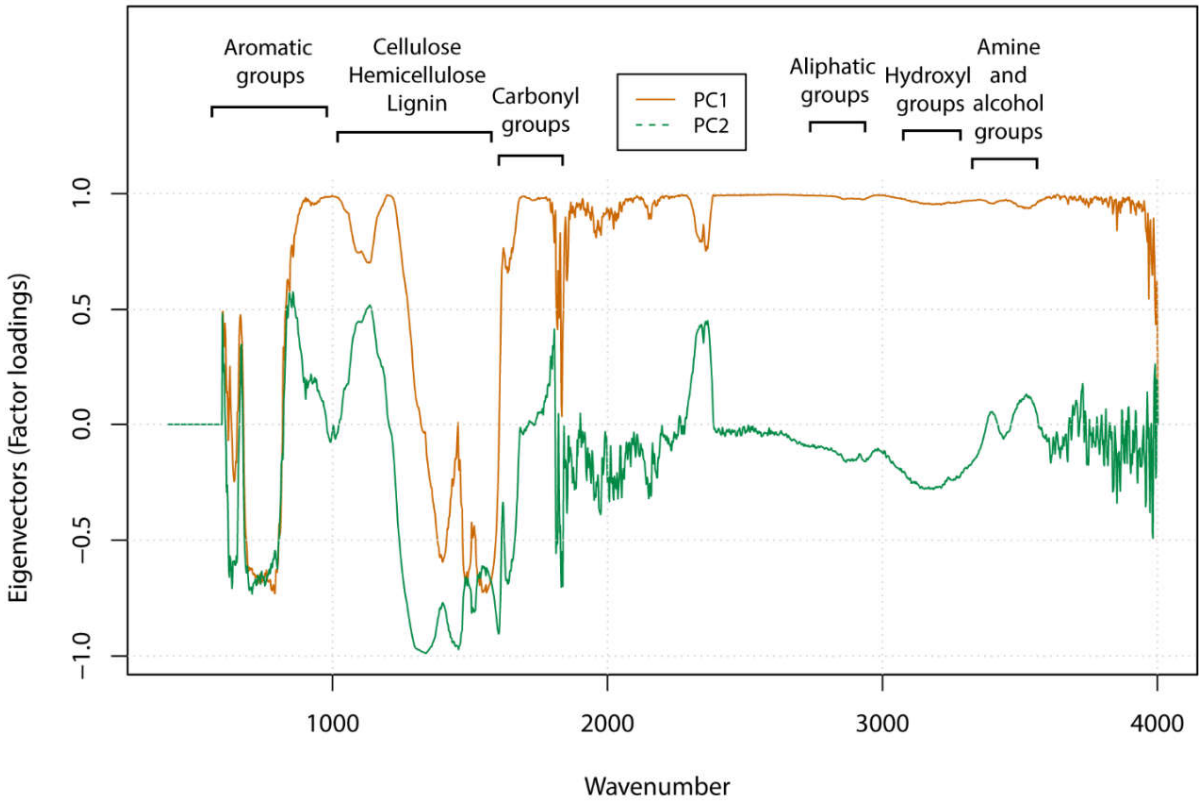

Table S1. NH_3-N emissions during 24 h on the 7th day from conditioner application as effect of conditioner, application method and time passed since conditioner application (ANOVA analysis; n = 3). Asterisks indicate level of significance. **** $p < 0.0001$; *** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$. A lack of * symbols indicates significance at $p < 0.1$

Factor	Df	Sum Sq.	Mean Sq.	F value	Pr(>F)	R^2	ω^2	Sig
BC	1	26	26.498	15.988	6.51×10^{-5}	0.0028	0.0026	***
BC application method	1	0.15	0.154	0.093	0.76079	1.6×10^{-5}	0.0000	
Acids	3	40	13.491	8.140	2.12×10^{-5}	0.0043	0.0037	***
Time passed	142	1729	12.180	7.349	$< 2 \times 10^{-16}$	0.1837	0.1587	***
BC:acids	3	40	13.311	8.032	2.48×10^{-5}	0.0042	0.0037	***
BC application method:acids	3	22	7.349	4.434	0.00407	0.0023	0.0018	**
BC:time passed	142	167	1.174	0.708	0.99618	0.0177	0.0000	
BC application method:time passed	142	149	1.053	0.635	0.99973	0.0158	0.0000	
Acids:time passed	426	583	1.368	0.825	0.00472	0.0619	0.0000	
BC:acids:time passed	426	414	0.973	0.587	1.00000	0.0440	0.0000	
BC application method:acids:time passed	426	550	1.292	0.779	0.99952	0.0584	0.0000	
Residuals	3432	5688	1.657					

Table S2. Digestate pH during first 5 days as an effect of conditioner, application method and time passed since conditioner application (ANOVA analysis; $n = 3$). Asterisks indicate the level of significance. **** $p < 0.0001$; *** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$. A lack of * symbols indicates significance at $p < 0.1$

Factor	Df	Sum Sq.	Mean Sq.	F value	Pr(>F)	R^2	ω^2	Sig
BC	1	0.622	0.622	8.903	0.003451	0.0170	0.0151	**
Acids	3	11.772	3.924	56.194	$<2 \times 10^{-16}$	0.3223	0.3166	***
BC application method	1	1.633	1.633	23.390	3.96×10^{-6}	0.0447	0.0428	***
Time passed	4	2.111	0.528	7.559	1.82×10^{-5}	0.0578	0.0501	***
BC:acids	3	7.364	2.455	35.150	2.24×10^{-16}	0.2016	0.1959	***
Acids:BC application method	3	0.316	0.105	1.511	0.215285	0.0086	0.0029	
BC:time passed	4	0.210	0.053	0.753	0.557858	0.0057	0.0000	
acids:time passed	12	1.361	0.113	1.624	0.093617	0.0372	0.0143	
BC application method:time passed	4	1.695	0.424	6.069	0.000176	0.0464	0.0387	***
BC:acids:time passed	12	0.362	0.030	0.432	0.947937	0.0099	0.0000	
Acids:BC application method:time passed	12	0.691	0.058	0.825	0.624555	0.0189	0.0000	
Residuals	120	8.380	0.070					

Table S3. Digestate pH during first 5 days (mean ± standard error, n = 3)

Treatment	0 h	48 h (2nd day)	72 h (3rd day)	96 h (4th day)	120 h (5th day)	Average
Control	7.84 ± 0.04 ab	8.26 ± 0.19 a	8.36 ± 0.08 a	8.46 ± 0.08 a	8.39 ± 0.09 a	8.25 ± 0.07 a
BCm	8.10 ± 0.13 a	7.87 ± 0.11 abcd	7.72 ± 0.03 abc	7.76 ± 0.13 bcde	7.78 ± 0.07 cde	7.85 ± 0.05 bc
BCs*	7.48 ± 0.27 abc	8.05 ± 0.06 abc	8.16 ± 0.11 a	8.03 ± 0.06 abc	8.10 ± 0.07 abc	7.98 ± 0.09 ab
H_2O_2	8.28 ± 0.14 a	8.19 ± 0.15 ab	8.34 ± 0.09 a	8.34 ± 0.12 ab	8.34 ± 0.07 ab	8.30 ± 0.05 a
H_2SO_4	7.15 ± 0.16 bc	7.31 ± 0.07 cde	7.41 ± 0.13 bc	7.44 ± 0.08 cde	7.62 ± 0.11 def	7.42 ± 0.07 ef
H_3PO_4	6.80 ± 0.04 c	6.97 ± 0.01 e	7.11 ± 0.05 c	7.26 ± 0.11 e	7.32 ± 0.06 ef	7.10 ± 0.06 f
BCm+H_2O_2	7.54 ± 0.31 abc	7.66 ± 0.31 abcde	7.25 ± 0.22 bc	7.31 ± 0.13 de	7.28 ± 0.08 f	7.40 ± 0.10 ef
BCm+H_2SO_4	7.44 ± 0.04 abc	7.18 ± 0.08 de	7.36 ± 0.14 bc	7.48 ± 0.15 cde	7.54 ± 0.10 def	7.41 ± 0.06 ef
BCm+H_3PO_4	7.36 ± 0.12 abc	7.36 ± 0.06 cd	7.38 ± 0.17 bc	7.49 ± 0.17 cde	7.57 ± 0.19 def	7.44 ± 0.08 def
BCs+H_2O_2*	7.70 ± 0.29 abc	7.61 ± 0.27 abcde	7.86 ± 0.21 ab	7.88 ± 0.16 abcd	7.89 ± 0.10 bcd	7.79 ± 0.09 bcd
BCs+H_2SO_4*	7.51 ± 0.25 abc	7.43 ± 0.03 bcde	7.79 ± 0.04 ab	7.72 ± 0.06 cde	7.81 ± 0.08 cd	7.67 ± 0.07 bcde
BCs+H_3PO_4*	7.02 ± 0.03 bc	7.49 ± 0.13 abcde	7.82 ± 0.13 ab	7.88 ± 0.13 abcde	7.84 ± 0.09 cd	7.60 ± 0.10 cde

* pH values below untreated and acidified BCs layer (approximately 3–5 cm depth). Control without conditioner; H_2O_2, H_2SO_4 and H_3PO_4 pure-form acids applied mixed to digestate; BC-biochar; BC+H_2O_2, BC+H_2SO_4 and BC+H_3PO_4 are BC acidified with the respective acid; BCm indicates that the BC was mixed with the digestate and BCs indicates that the BC was applied to the digestate surface.