

Supplementary

Agro-Industrial Waste Biochar Abated Nitrogen Leaching from Tropical Sandy Soils and Boosted Dry Matter Accumulation in Maize

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Table S1: Some physico-chemical properties of the biochar used

Biochar type	SD	RH	CC
pH	8.06	7.35	7.47
Total P (mg/kg)	896.24	1246.15	938.01
Total surface area (m ² /g)	3.62	3.02	2.69
Exchangeable bases (%)			
Ca ²⁺	1.23	0.58	0.71
Mg ²⁺	0.68	0.30	0.39
K ⁺	1.19	0.80	0.86
Na ⁺	1.89	1.43	1.27

SD: Sawdust RH: Rice husk CC: Corn cob

Table S2: Amount of $\text{NH}_4^+\text{-N}$ and $\text{NO}_3^-\text{-N}$ retained by biochar

Biochar type	Fertilizer	Amount of nitrogen retained (mg/kg biochar)	
		NH_4	NO_3
SD	$(\text{NH}_4)_2\text{SO}_4$	2273.4±326.05	NA
SD	KNO_3	NA	2283.93±229.88
SD	NH_4NO_3	2475.1±291.55	2241.44±231.41
RH	$(\text{NH}_4)_2\text{SO}_4$	1809.57±145.18	NA
RH	KNO_3	NA	1743.33±152.66
RH	NH_4NO_3	1703.88±198.20	1860.32±139.18
CC	$(\text{NH}_4)_2\text{SO}_4$	1756.7±188.90	NA
CC	KNO_3	NA	1881.31±200.97
CC	NH_4NO_3	1022.38±188.09	1569.08±211.49

NA: not applicable

Table S3: Residual soil available N

Seasons	Soils	Biochar	NO ₃ ⁻ -N/ NH ₄ ⁺ -N (mg/kg)							
		Amendments	ASP		ASS		CD		CDASS	
			NH ₄ ⁺	NO ₃ ⁻	NH ₄ ⁺	NO ₃ ⁻	NH ₄ ⁺	NO ₃ ⁻	NH ₄ ⁺	NO ₃ ⁻
1 st season	K	Cn	18.43a	18.86f	19.77a	17.99f	21.21a	18.8f	22.42a	19.64f
		RH20	39.62c	80.1h	43.35c	81.1h	44.06c	79.42h	41.82c	81.01h
		RH40	40.11c	84.87h	43.44c	76.83h	41.21c	76.57h	43.4c	78.78h
		SD20	39.79c	79.29h	42.85c	78.43h	41.96c	79.61h	44.27c	80.15h
		SD40	45.08c	77.87h	44.47c	81.72h	48.4c	65.93h	45.75c	76.96h
	Ny	Cn	26.66b	33.32g	27.85b	34.03g	29.84b	38.75g	29.53b	42.45g
		RH20	54.49d	96.73j	53.98d	92.69j	55.22d	102.16j	53.63d	99.82j
		RH40	56.51d	95.53j	55.45d	100.29j	55.54d	97.46j	57.88c	94.2j
		SD20	56.27d	96.09j	52.17d	93.02j	56.13d	104.56j	52.84d	95.61j
		SD40	55.93d	93.94j	54.57d	95.38j	57.51d	100.44j	58.24d	105.19j
2 nd Season	K	Cn	6.14r	12.51u	6.59r	11.12u	9.07r	10.42u	7.44r	9.03u
		RH20	19.71t	39.12w	14.65t	34.83w	15.53t	43.52w	16.05t	34.38w
		RH40	16.83t	39.46w	19.73t	38.13w	20.19t	40.59w	20.99t	43.99w

		SD20	12.80t	42.77w	17.88t	35.17w	19.16t	34.08w	16.37t	42.51w
		SD40	16.42t	33.21w	17.24t	32.35w	19.34t	37.6w	18.66t	37.93w
	Ny	Cn	11.92rs	18.49v	12.49rs	16.82v	15.86s	17.56v	10.7r	18.5v
		RH20	27.65p	58.47y	29.89p	54.48y	28.64p	56.83y	28.75p	60.49y
		RH40	31.29p	61.68y	31.97p	55.97y	29.29p	5.66y	34.91p	53.62y
		SD20	27.95p	57.95y	35.25p	60.66y	27.12p	55.84y	33.29p	63.04y
		SD40	35.23p	59.84y	28.87p	53.48y	38.92p	52.87y	34.87p	58.95y