

Integrating bottom ash residue from biomass power generation into anaerobic digestion to improve biogas production from lignocellulosic biomass

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Table S1 Concentration of the mineral elements at different bottom ash loadings in the anaerobic digestion slurry^a

BA loading (%)	S	K	Ca	Al	Fe	Pb	Zn	Cu	Cr	Co	Ni	Mn	Hg	W	Se
0.37	49.4	134.8	155.1	72.1	30.8	2.1	1.4	0.3	0.1	0.05	0.01	0.001	0.004	0.01	0.003
0.74	48.9	269.6	310.2	144.3	61.5	4.0	2.8	0.6	0.3	0.1	0.03	0.01	0.008	0.02	0.006
1.48	197.8	539.2	620.4	288.6	123.1	8.1	5.6	1.2	0.6	0.2	0.06	0.02	0.016	0.04	0.01
2.96	395.7	1078.3	1240.8	577.1	246.1	15.8	11.3	2.3	1.2	0.4	0.12	0.04	0.03	0.08	0.02

^a In this table, the selected elements were reported with negative or positive effects on anaerobic digestion, and the related references were listed as follows.¹⁻⁶ BA referred to bottom ash here.

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Table S2 Composition changes of rice straw before/after pretreatment by bottom ash at different loadings

BA loading (%)	Solid recovery (g)	Lignin (g [#])	Cellulose (g)	Hemicellulose (g)	Delignification (%)	Cellulose recovery (%)	Hemicellulose removal (%)
Unpretreated rice straw	100.0	22.1±0.7 ^a	35.3±0.1	18.2±1.1	N.A.	N.A.	N.A.
0.0	71.7±1.1	18.5±0.2	30.4±0.6	14.7±0.4	16.5±1.1	85.9±0.9	19.5±1.3
0.37	66.7±2.1	17.7±0.3	26.2±1.6	10.4±2.3	20.1±1.5	84.3±1.0	25.3±1.6
1.48	65.0±1.5	16.3±0.9	29.9±1.0	11.7±1.8	26.5±1.2	87.0±0.5	35.8±0.9
2.96	61.4±1.4	15.8±0.8	27.8±2.0	11.2±1.4	28.6±1.3	78.7±0.6	38.7±1.2

^a Data in the table were exhibited in the form of “Mean ± Standard deviation”; “N.A.” meant “not available”. BA here referred to bottom ash