

Supplementary Information

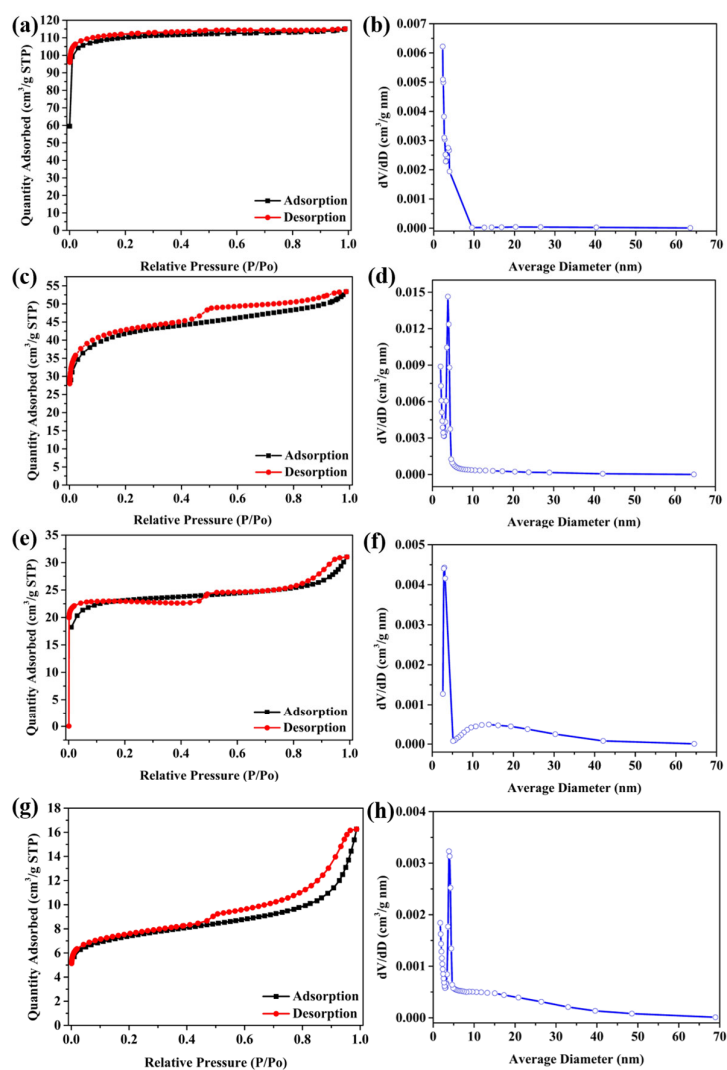


Figure S1. Adsorption-desorption isotherm and pore size distribution graph of biochar samples after activation at 650 °C. (a), (b) CH; (c), (d) CD; (e), (f) PM; (g), (h) CM.

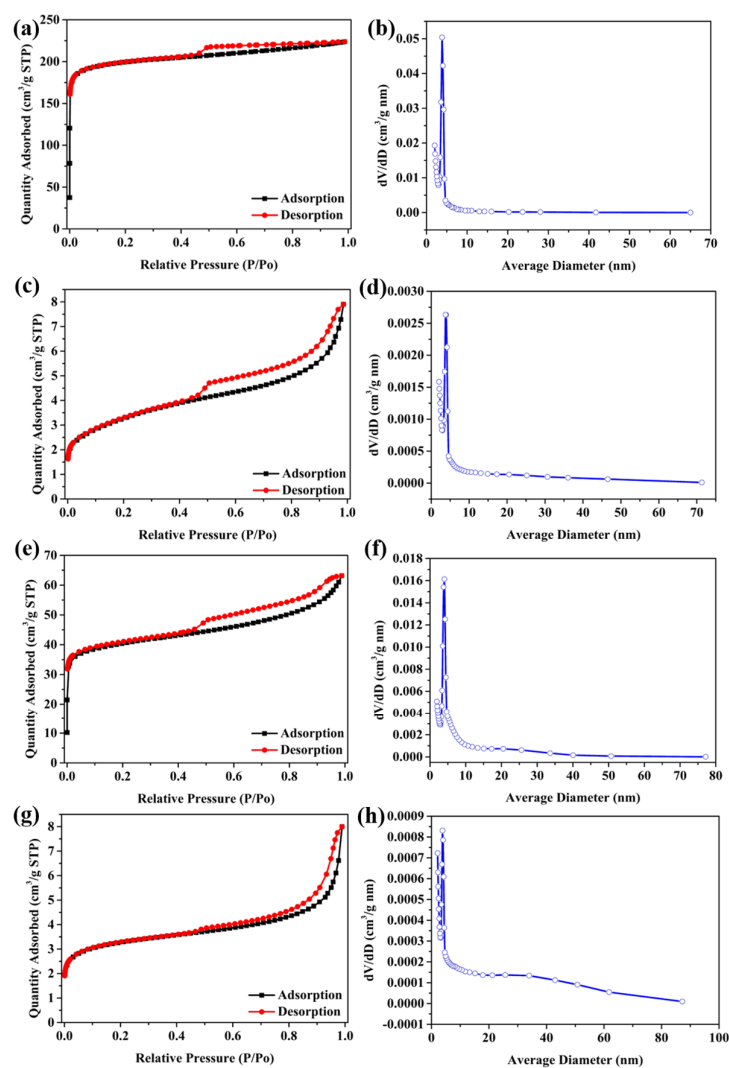


Figure S2. Adsorption-desorption isotherm and pore size distribution graph of biochar samples after activation at 750 °C. (a), (b) CH; (c), (d) CD; (e), (f) PM; (g), (h) CM.

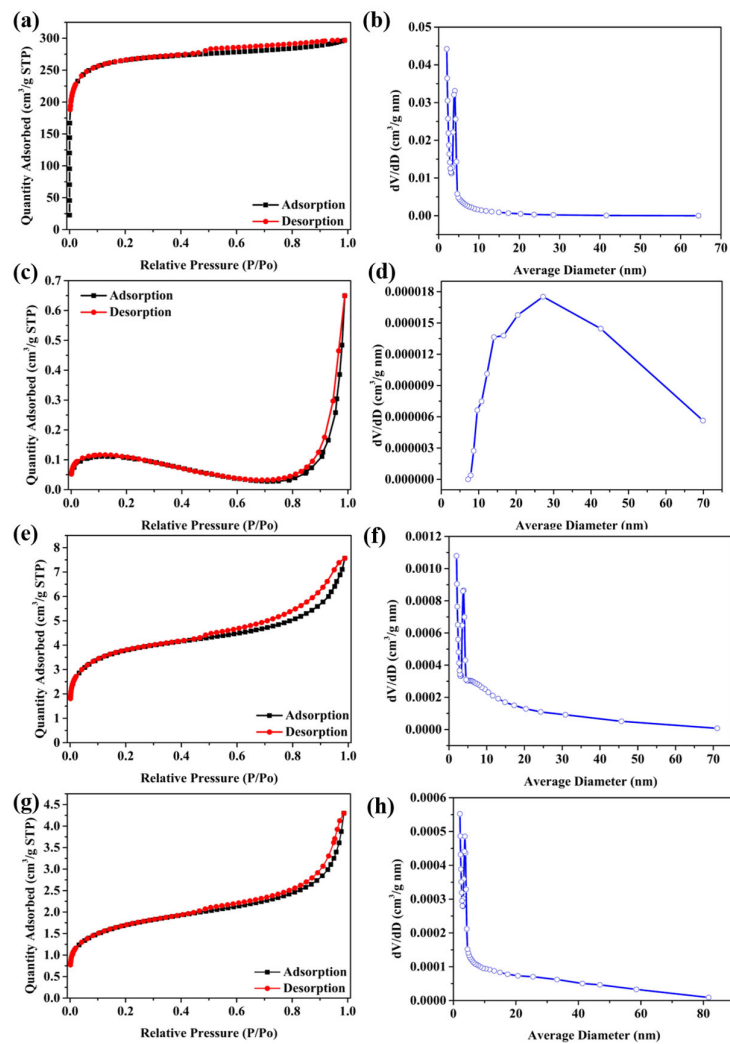


Figure S3. Adsorption-desorption isotherm and pore size distribution graph of biochar samples after activation at 850 °C. (a), (b) CH; (c), (d) CD; (e), (f) PM; (g), (h) CM.

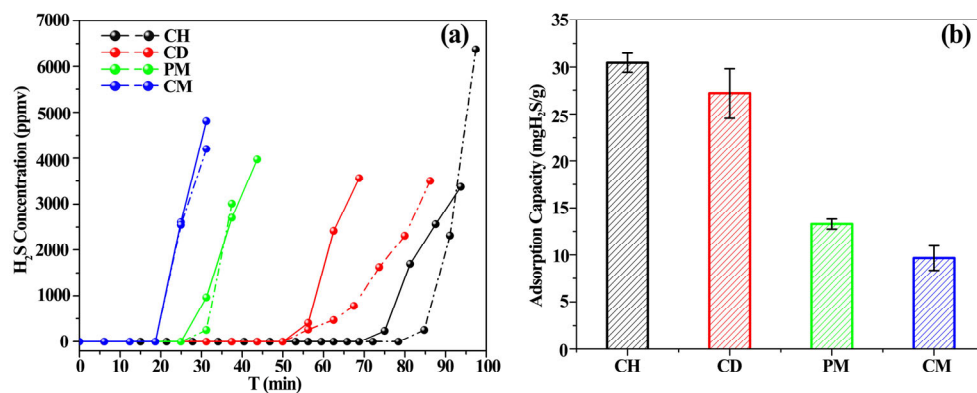


Figure S4. (a) The H₂S breakthrough curve of unactivated biochar samples; (b) The H₂S removal capacities histogram of unactivated biochar samples.

Table S1. FTIR spectral band assignments for biochar and activated biochar from different types of livestock manure and coconut husks

Wave numbers (cm ⁻¹)	3200-3700	3000-2700	1780-1710	1750-1630	1450-1317	1000-1200	750-870
Assignments	O-H stretching	C-H _n stretching	Carboxylic Acid C=O stretching	Ketone, Amide C=O Stretching	Ester, C-H bending	C=O/C-O-C	C-N/R-O-C/R-O-CH ₃ stretching aromatic C-H
CH-500C	-	-	-	-	1369 (+)	1165 (+)	870(++)
CD-500C	-	-	-	-	1391 (++)	1012 (++)	870(++)
PM-500C	-	-	-	-	1407(++)	1021 (++)	870(++)
CM-500C	-	-	-	-	1405(+)	990 (++)	870 (++)
CH-500P-650A	-	-	-	-			
CD-500P -650A	-	-	-	-	1406(++)	992 (++)	869 (++)
PM-500P-650A	-	-	-	-	1406(++)	1023 (++)	870 (++)
CM-500P-650 A	-	-	-	-	1409(++)	1013 (++)	870 (++)
CH -500P -750A	-	-	1780(++)	-			
CD-500P -750A	-	-	-	-	1413(++)	1020 (++)	870 (++)
PM -500P-750A	-	-	-	-	1413(++)	1020 (++)	870(+)
CM-500P-750 A	3443(++)	2933(+)	-	1635(++)	1458(++)	1048 (++)	901(+)
CH-500P -850A	3226(++)	-	-	1635(++)	1448(++)	998 (++)	873(+)
CD-500P -850A	-	-	-	-	1436(++)	1010 (++)	889(++)

PM -500P-850A	-	-	-	-	1436(+)	1018 (++)	873(+)
CM-500P-850A	-	-	-	-	1458(++)	1023 (++)	873(++)

Note: ++=strongly observed; +=weakly observed