

Supplementary Material

Adsorption of Atrazine by Fe-Mn-Modified Biochar: The Dominant Mechanism of π - π Interaction and Pore Structure

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Table S1. Adsorption kinetic model parameters for original biochar and modified

biochar

Material	Pseudo-First-order			Pseudo-Second-order		
	Qe/ (mg•kg ⁻¹)	k ₁ / (g•mg ⁻¹ •min ⁻¹)	R ²	Qe/ (mg•kg ⁻¹)	k ₂ / (g•mg ⁻¹ •min ⁻¹)	R ²
DBC	134317	0.0126	0.896	1423.70	0.00131	0.960
F ₃ M ₁ DBC	3437.32	0.1094	0.955	3528.73	0.00607	0.989
F ₁ M ₃ DBC	2414.96	0.0675	0.893	2504.95	0.00435	0.956
MnDBC	2175.45	0.0441	0.921	2266.43	0.00295	0.978
FeDBC	1413.85	0.0335	0.824	1489.43	0.00311	0.915

Table S2. Elovich kinetic model parameters for original biochar and modified biochar

Material	First stage			Second stage			Third stage		
	k_1	C_1	R^2	k_2	C_2	R^2	k_3	C_3	R^2
DBC	0.618	157.66	0.978	0.174	590.46	0.995	0.017	1472.61	0.944
F ₃ M ₁ DBC	0.628	2452.87	0.951	0.074	3232.18	0.957	0.0086	3575.63	0.998
F ₁ M ₃ DBC	0.633	1351.99	0.971	0.132	1950.40	0.975	0.015	2508.77	0.846
MnDBC	0.945	768.15	0.955	0.086	1842.58	0.965	0.020	2198.98	0.992
FeDBC	0.564	467.79	0.996	0.171	1026.41	0.995	0.043	1707.66	0.997

Table S3. The adsorption isothermal models parameters for original biochar and modified biochar

Material	Langmuir model			Freundlich model		
	Qm mg•kg ⁻¹	b L•mg ⁻¹	R ²	K _F	1/n	R ²
DBC	2321.51	0.390	0.932	953.50	0.239	0.991
F ₃ M ₁ DBC	7993.44	2.798	0.915	4155.28	0.235	0.931
F ₁ M ₃ DBC	4854.88	0.540	0.975	1899.83	0.269	0.981
MnDBC	4838.39	0.492	0.978	1861.22	0.274	0.982
FeDBC	3907.27	0.425	0.976	1508.56	0.264	0.983

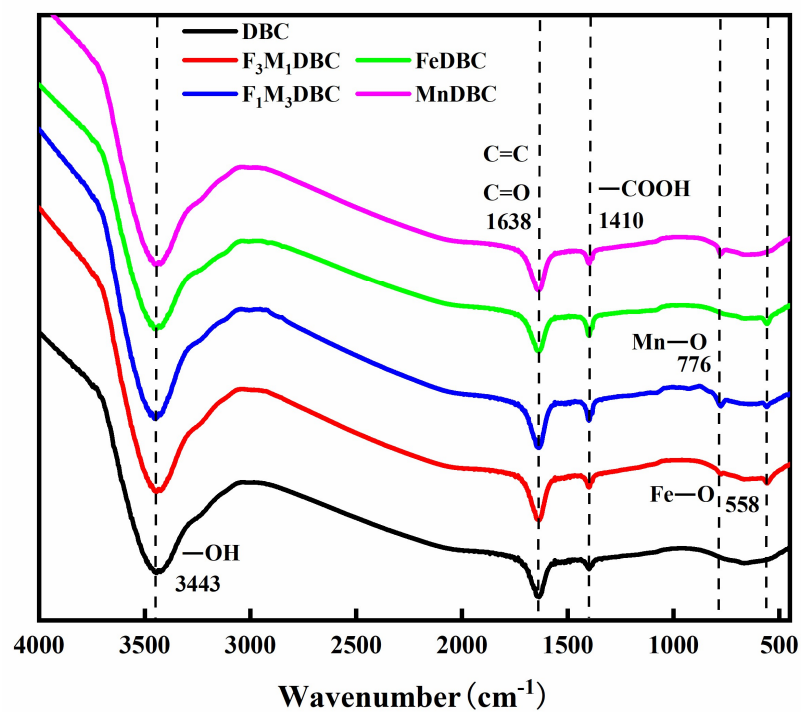


Figure S1. FT-IR spectra of biochar before and after modification

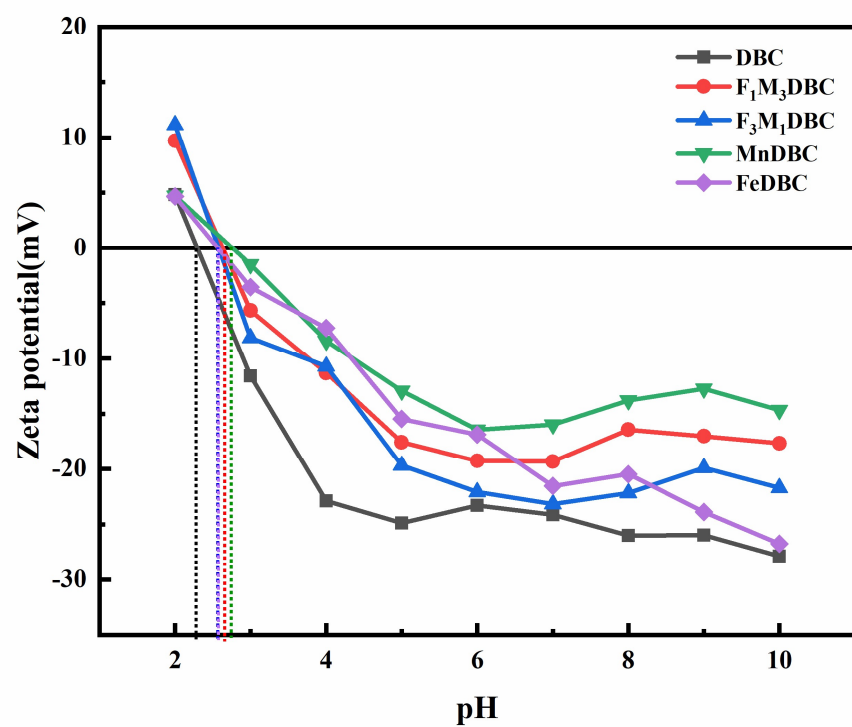


Figure S2. The Zeta potential of the original biochar and modified biochar