Materials Technology Reports 2025, 3(1), 2109.
https://doi.org/10.59400/mtr2109

Article

A ubiquitous waste as a superior adsorbent for methylene blue removal: Cow-hair biochar

Supplementary materials

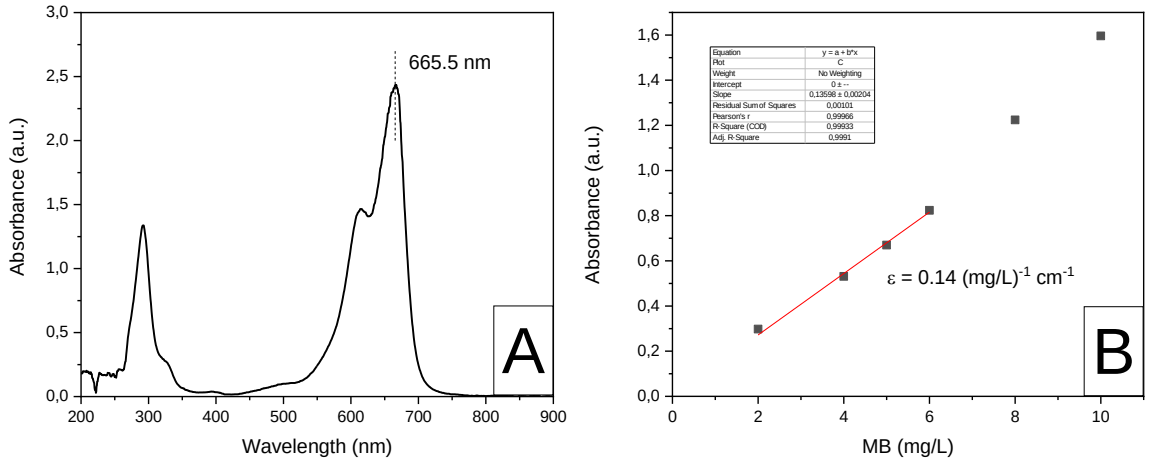
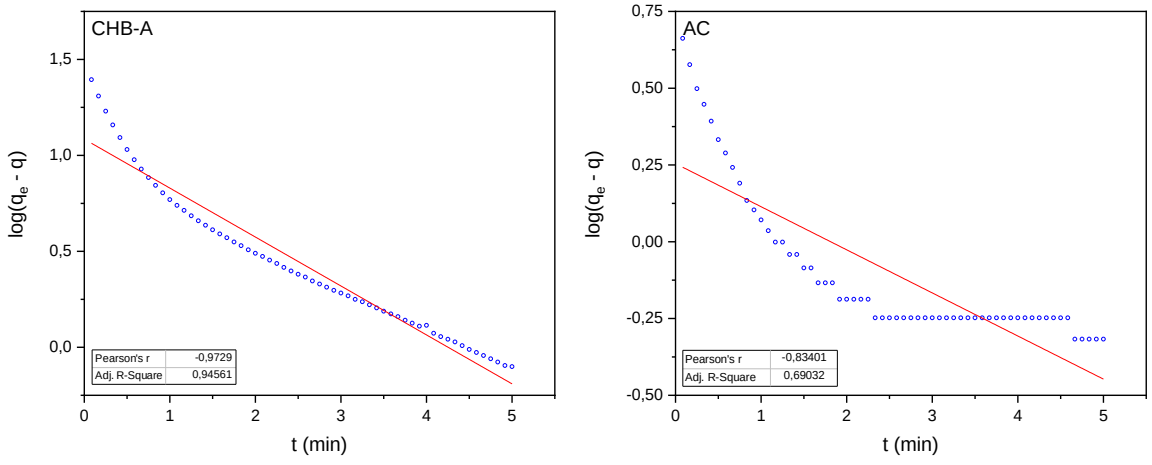


Figure S1. UV spectrum of methylene blue **(A)** and the corresponding calibration curve at 665.5 nm **(B).**



(A) **(B)**

Figure S2. MB adsorption kinetic onto CHB-A **(A)** and AC **(B)** fitted into the pseudo-second-order models.

Table S1. Initial and final pH of MB solution after its adsorption onto CHB-A.

Initial pH	Final pH
2.0	5.3
4.0	6.3
6.5	8.1
10.0	10.2

Table S2. Interparticle diffusion (IPD) model.

	CHB-A			**AC**		
	1° -----*	**2° -----***	**3° -----***	**1° -----***	**2° -----***	**3° -----***
Slope (k_p)	**241.4**	67.3	21.9	**40.1**	11.7	0.8
Intercept (C)	−2.5	15.8	23.6	0.3	3.5	5.4
Pearson's r	0.99464	0.98703	0.98988	0.99308	0.98593	
R-Square (COD)	0.98931	0.97423	0.97986	0.9862	0.97205	
Adj. R-Square	0.98753	0.97188	0.97931	0.98423	0.96926	1

* the colors indicate the slope in the graph

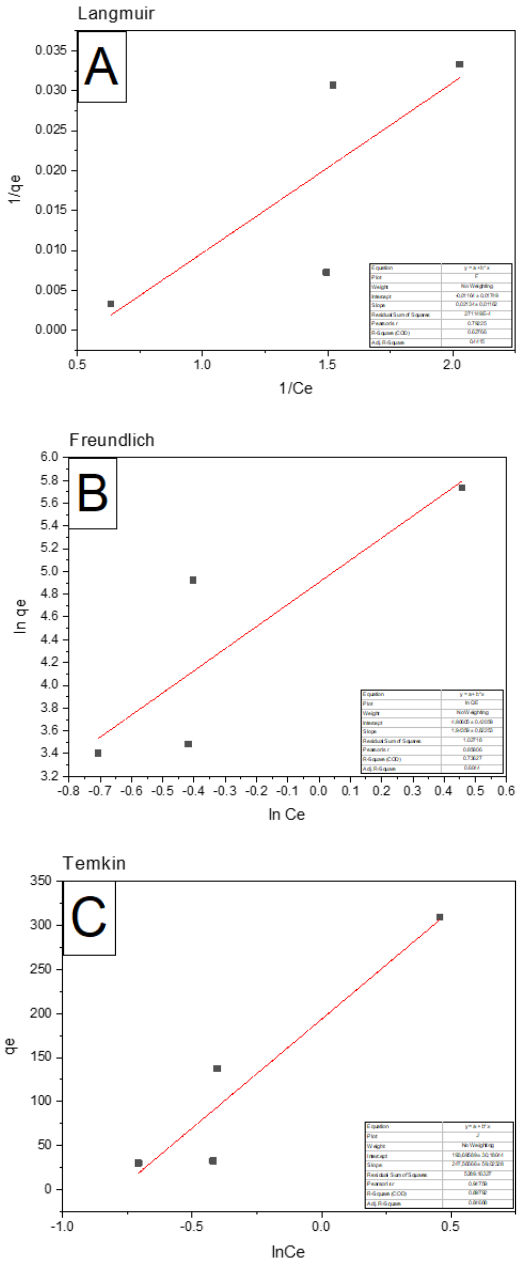


Figure S3. Isotherm's plot of Langmuir (**A**), Freundlich (**B**) and Temkin (**C**).