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Effect on physical and chemical characteristics of activated carbon on adsorption of trimethoprim: Mechanisms study

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Table S1. The various process parameters for preparing the five types of AC.

Identification	Precursor	Activating agent	Impregnation		Activation	
			Ratio	Time	Temperature	Time
Micro-AC	*Phragmites australis*	NaOH	2:1	12 h	750	60 min
Meso-AC	*Phragmites australis*	H_3PO_4	2:1	12 h	450	60 min
AC-M	Inosite	H_3PO_4	2:1	12 h	450	60 min
AC-L	*Phragmites australis*	$(CH_3)_3PO_4$	1:2	12 h	450	60 min
Non-AC-M	Starch	H_3PO_4	2:1	12 h	450	60 min

Impregnation Ratio: g activating agent/g precursor.

Table S2. The isotherm parameters for TMP adsorption on the ACs.

Samples	Langmuir			Freundlich		
	Q_m (mg/g)	K_L (L/mg)	R^2	K_F ($mg^{1-1/n}$ $L^{1/n}$/g)	1/n	R^2
Micro-AC	543	0.249	0.9915	331	0.103	0.9676
Meso-AC	373	0.066	0.9934	141	0.180	0.9715
AC-M	380	0.072	0.9907	150	0.173	0.9516
AC-L	50.3	0.029	0.9965	14.4	0.208	0.9770
Non-AC-M	411	0.098	0.9841	184	0.154	0.9556
Graphite	2.84	0.149	0.9979	2.14	0.048	0.9888

Table S3. Kinetic results for TMP adsorption on the ACs.

Kinetic models	Parameters	Micro-AC	Meso-AC	AC-M	AC-L	Non-AC-M
Pseudo-first-order	Q_e (cal) (mg/g)	92.9	128	220	24.7	237
	K_1 (1/h)	0.180	0.893	0.167	0.529	0.309
	R^2	0.9536	0.9132	0.9713	0.9641	0.9791
Pseudo-second-order	Q_e (cal) (mg/g)	481	306	332	36.6	355
	K_2 (g/mg h) *10^{-3}	78.9	36.2	3.21	0.0109	7.54
	R^2	0.9998	0.9999	0.9996	0.9992	0.9993
Q_e (exp) (mg/g)		479	304	316	34.3	340

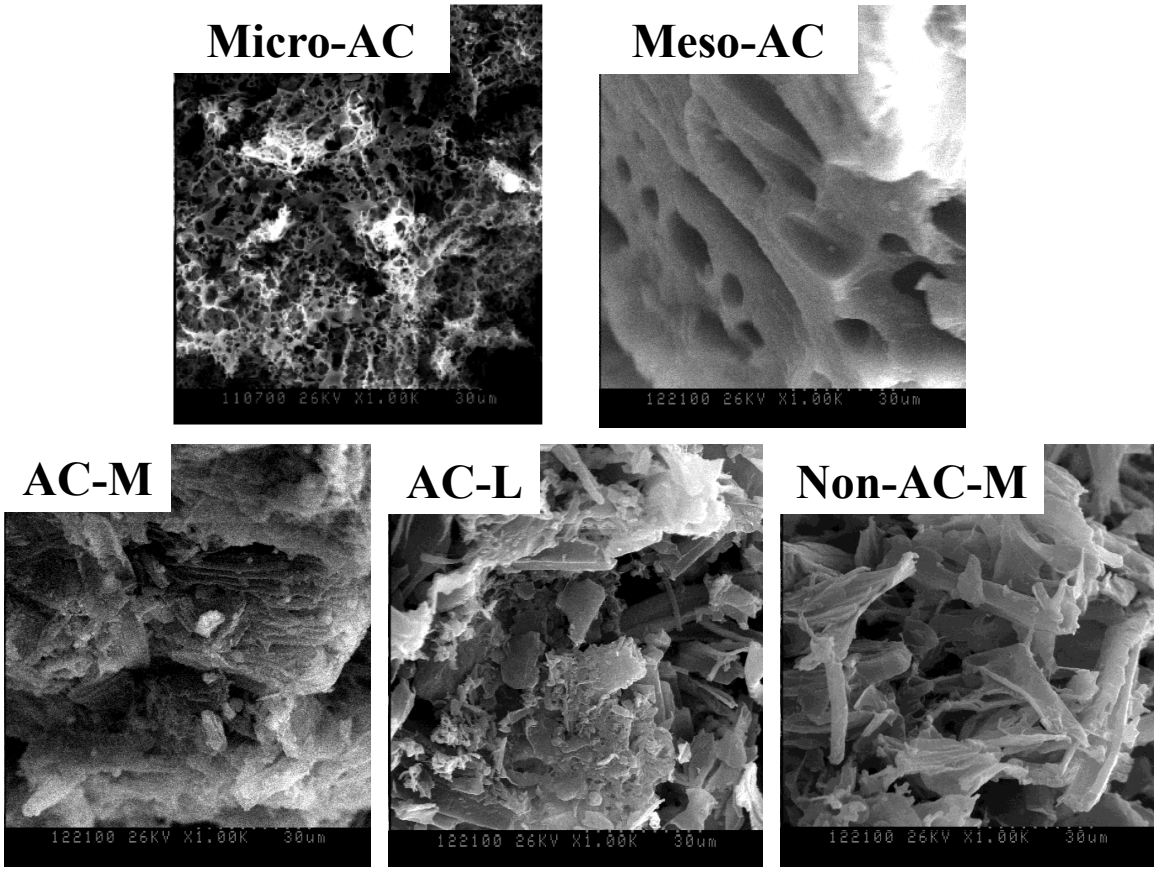

Figure S1. SEM images of the carbon adsorbents.