Electronic Supplementary Material (ESI) for Analytical Methods.

Supporting Information

Simultaneous determination of aflatoxin B1 and zearalenone by magnetic nanoparticles filled amino-modified multi-walled carbon nanotubes

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Table S1 Fitting results of isotherms for AFB1 and ZON simultaneous adsorption

Analytes	Langmuir model $C_e/q_e = C_e/Q^0 + 1/K_L Q^0$			Freundlich model $\lg q_e = \lg K_F + \lg C_e/n$		Dubinin-Ashtakhov model $\lg q_e = \lg Q^0 - (\varepsilon/E)^b$		
	K_L	r^2	Q^0	n	r^2	b	r^2	Q^0
AFB1	3.83±0.21	0.979	5.60±0.26	1.35±0.12	0.984	4.31±0.25	0.994	6.46±0.22
ZON	0.13±0.06	0.672	9.31±0.38	1.12±0.08	0.988	1.79±0.13	0.994	5.79±0.18

C_e [mg/L]: the concentration of analyte at equilibrium; q_e [mg/g]: the adsorbed analyte amount at equilibrium; Q^0 [mg/g]: the maximum adsorption capacity of the adsorbent; K_L[L/mg]: the affinity coefficient; K_F [(mg/g)/(mg/L)^n]: Freundlich affinity coefficient; n: Freundlich exponential coefficient; $\varepsilon = RT\ln(C_s/C_e)$, ε [kJ/mol]: the effective adsorption potential; C_s [mg/L]: the water solubility of the analyte; E [kJ/mol]: the "correlating divisor"; b: fitting parameter.

Table S2 Fitting results of kinetic models for AFB1 and ZON simultaneous adsorption

Analytes	Pseudo-first-order model $\lg(q_e - q_t) = \lg q_e - k_1 t/2.303$		Pseudo-second-order model $t/q_t = 1/k_2 q_e^2 + t/q_e$		Parabolic diffusion model $q_t/q_e t = k_3 t^{0.5} + a$	
	k_1	r^2	k_2	r^2	k_3	r^2
AFB1	0.244±0.006	0.820	0.705±0.18	0.999	-0.045±0.002	0.843
ZON	0.370±0.004	0.780	0.429±0.13	0.999	-0.042±0.003	0.849

q_t (mg/g): the amount of the adsorbed analyte at certain time t; k_1 [g/(mg min)]: the rate constant of the pseudo-first-order model; k_2 [g/(mg min)]: the rate constant of the pseudo-second-order model; k_3: the overall diffusion constant for adsorption.

Table S3 The penalty points (PPs) for AFB1 and ZON determination in wheat flour by HPLC-DAD

Reagents	
	Penalty points
Methanol (>100 mL)	3
Acetone: 0.2 mL	1
AFB1 and ZON standard solutions	4
	∑8
Instruments	
	Penalty points
HPLC-DAD	1
Occupational hazard	0
Waste	2
	∑3
Total penalty points: 11	
Analytical Eco-Scale total score: 89	