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Supporting Information

Excellent fluoride removal performance by electrospun La-Mn bimetal oxide nanofibers

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Abbreviations

C_0	initial fluoride concentration (mg L^{-1})
C_e	equilibrium fluoride concentration (mg L^{-1})
m	mass of La-Mn adsorbent (g)
V	volume of fluoride solution (L)
Q_e	adsorption capacity at equilibrium (mg g^{-1})
Q_m	maximum adsorption capacity (mg g^{-1})
Q_t	adsorption capacity at any time t (mg g^{-1})
PFO	pseudo-first order
PSO	pseudo-second order
k_1	LPFO rate constant (min^{-1})
k_2	LPSO rate constant (g mg^{-1}·min^{-1})
k_{int}	intra-particle diffusion efficient (g mg^{-1} $min^{-1/2}$)
K_F	distribution coefficient ($L^{1/n}$ $mg^{1-1/n}$ g^{-1})
n	correction factor
t	time (min)
L	the thickness of boundary layer
k_{int}	constant of intra-particle diffusion (g mg^{-1} $min^{1/2}$)
b	constant of the Langmuir isotherm (L mg^{-1})
ΔG	the Gibbs free energy change (kJ mol^{-1})
ΔH	the enthalpy change (kJ mol^{-1})

ΔS the entropy change (kJ mol^{-1} K^{-1})

R the ideal gas constant (8.314 J mol K^{-1})

T the absolute temperature (K)

Table S1 Comparison of specific surface area and adsorption capacity with other similar studies.

adsorbents	BET (m^2 g^{-1})	Ref.
CeO_2-ZrO_2 nanocages	29.61	1
Zr-CTS beads	0.14	2
γ-Fe-CTB composite	0.15	3
La_2O_3-CeO_2/laterite (LCL)	14.4	4
ZrO_2/SiO_2/Fe_3O_4	4.6	5
tin-impregnated chitin (SnC)	2.83	6
Sn(IV) chloride impregnated chitosan (Sn-Ch)	3.02	7

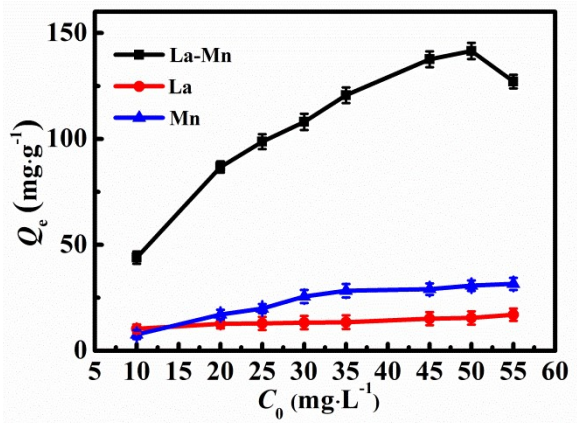

Fig. S1 Effect of fluoride concentration on fluoride ion adsorption on La-Mn bimetal oxide nanofibers, La nanofibers and Mn nanofibers. (dosage = 0.01 g, pH = 3, T = 298 K, V = 50 mL)

1. J. Wang, W. Xu, L. Chen, Y. Jia, L. Wang, X.-J. Huang and J. Liu, *Chemical Engineering Journal*, 2013, **231**, 198-205.
2. S. Tandekar, D. Saravanan and R. Jugade, 2020.
3. S. Tandekar, D. Saravanan, S. Korde and R. Jugade, *Materials Today: Proceedings*, 2020, **29**.
4. D. T. Lim, T. N. Tuyen, D. N. Nhiem, D. H. Duc, P. N. Chuc, N. Q. Bac, D. X. Tung, N. N. Pham, L. T. V. Ha, N. T. T. Tu, V. T. Nguyen, D. Q. Khieu and D. k. Yi, *Journal of Nanomaterials*, 2021, **2021**, 1-13.
5. C. F. Chang, C. Y. Chang and T. L. Hsu, *Desalination*, 2011, **279**, 375-382.
6. A. Shekhawat, S. S. Kahu, D. Saravanan and R. M. Jugade, *RSC Advances*, 2016, **6**, 18936-18945.

7. S. Kahu, A. Shekhawat, D. Saravanan and R. Jugade, *Int. J. Biol. Macromol.*, 2017, **104**, 1528-1538.