membranes

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Supplementary Data

Experimental Design as a Tool for Optimizing and Predicting the Nanofiltration Performance by Treating Antibiotic-Containing Wastewater

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23 **Table S1.** Full factorial design used in the NF permeation experiments.

Run	A	B	C	D	E	Run	A	B	C	D	E
1	-1	-1	-1	-1	-1	33	-1	-1	-1	-1	-1
2	+1	-1	-1	-1	-1	34	+1	-1	-1	-1	-1
3	-1	+1	-1	-1	-1	35	-1	+1	-1	-1	-1
4	+1	+1	-1	-1	-1	36	+1	+1	-1	-1	-1
5	-1	-1	+1	-1	-1	37	-1	-1	+1	-1	-1
6	+1	-1	+1	-1	-1	38	+1	-1	+1	-1	-1
7	-1	+1	+1	-1	-1	39	-1	+1	+1	-1	-1
8	+1	+1	+1	-1	-1	40	+1	+1	+1	-1	-1
9	-1	-1	-1	+1	-1	41	-1	-1	-1	+1	-1
10	+1	-1	-1	+1	-1	42	+1	-1	-1	+1	-1
11	-1	+1	-1	+1	-1	43	-1	+1	-1	+1	-1
12	+1	+1	-1	+1	-1	44	+1	+1	-1	+1	-1
13	-1	-1	+1	+1	-1	45	-1	-1	+1	+1	-1
14	+1	-1	+1	+1	-1	46	+1	-1	+1	+1	-1
15	-1	+1	+1	+1	-1	47	-1	+1	+1	+1	-1
16	+1	+1	+1	+1	-1	48	+1	+1	+1	+1	-1
17	-1	-1	-1	-1	+1	49	-1	-1	-1	-1	+1
18	+1	-1	-1	-1	+1	50	+1	-1	-1	-1	+1
19	-1	+1	-1	-1	+1	51	-1	+1	-1	-1	+1
20	+1	+1	-1	-1	+1	52	+1	+1	-1	-1	+1
21	-1	-1	+1	-1	+1	53	-1	-1	+1	-1	+1
22	+1	-1	+1	-1	+1	54	+1	-1	+1	-1	+1
23	-1	+1	+1	-1	+1	55	-1	+1	+1	-1	+1
24	+1	+1	+1	-1	+1	56	+1	+1	+1	-1	+1
25	-1	-1	-1	+1	+1	57	-1	-1	-1	+1	+1
26	+1	-1	-1	+1	+1	58	+1	-1	-1	+1	+1
27	-1	+1	-1	+1	+1	59	-1	+1	-1	+1	+1
28	+1	+1	-1	+1	+1	60	+1	+1	-1	+1	+1
29	+-1	-1	+1	+1	+1	61	-1	-1	+1	+1	+1
30	+1	-1	+1	+1	+1	62	+1	-1	+1	+1	+1
31	-1	+1	+1	+1	+1	63	-1	+1	+1	+1	+1
32	+1	+1	+1	+1	+1	64	+1	+1	+1	+1	+1

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Table S2. Results of the coefficients of factors in relation to permeate flux, with p <0.05 in bold. A = antibiotic MW (Da); B = feed flow rate (L h^{-1}); C = antibiotic concentration (mg L^{-1}); D = membrane MWCO (Da); E = transmembrane pressure (bar).

Factor	Coefficient	*p*-value	Factor	Coefficient	*p*-value
Constant	62.784		**CD**	**-0.876**	**0.007**
A	2.064	**0.000**	**CE**	**-0.647**	**0.043**
B	0.625	0.051	**DE**	**11.707**	**0.000**
C	**-1.369**	**0.000**	ABC	0.144	0.645
D	**30.120**	**0.000**	**ABD**	**-0.798**	**0.014**
E	**25.364**	**0.000**	ABE	-0.429	0.174
AB	**-0.888**	**0.007**	ACD	-0.138	0.659
AC	-0.075	0.810	ACE	-0.121	0.698
AD	**-2.148**	**0.000**	**ADE**	**-1.116**	**0.001**
AE	**-0.968**	**0.003**	BCD	0.155	0.620
BC	0.428	0.175	BCE	0.529	0.096
BD	0.208	0.506	BDE	0.138	0.658
BE	0.157	0.615	**CDE**	**-0.630**	**0.049**

R^2 = 0.9979; R^2_{adj} = 0.9956.

Table S3. Results of the coefficients of factors in relation to rejection, with p <0.05 in bold. A = antibiotic MW (Da); B = feed flow rate (L h^{-1}); C = antibiotic concentration (mg L^{-1}); D = membrane MWCO (Da); E = transmembrane pressure (bar).

Factor	Coefficient	*p*-value	Factor	Coefficient	*p*-value
Constant	**89.449**		CD	-0.193	0.447
A	**7.838**	**0.000**	CE	**0.117**	0.645
B	-0.201	0.429	DE	0.247	0.332
C	0.220	0.386	ABC	-0.092	0.716
D	**-9.103**	**0.000**	ABD	-0.065	0.797
E	0.313	0.220	ABE	0.134	0.597
AB	-0.420	0.102	ACD	-0.002	0.993
AC	0.290	0.255	ACE	-0.246	0.334
AD	**7.683**	**0.000**	**ADE**	**-0.671**	**0.011**
AE	**-0.680**	**0.010**	BCD	-0.027	0.914
BC	0.138	0.586	BCE	-0.351	0.171
BD	0.130	0.608	BDE	0.027	0.914

R^2 = 0.9884; R^2_{adj} = 0.9808.