

SUPPORTING INFORMATION

Sulfonated Polyether Ketone Membranes Embedded with Nalidixic Acid – An Emerging Controlled Drug Releaser.

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Table S1: Data showing the selection of model in RSM**Response 1: Degree of sulphonation**

Source	Sequential p-value	Lack of Fit p-value	Adjusted R ²	Predicted R ²	
Linear	0.0097		0.4066	0.1199	
2FI	< 0.0001		0.8838	0.2893	Suggested
Quadratic	0.0004		0.9666	0.9079	

Sequential Model Sum of Squares

Source	Sum of Squares	df	Mean Square	F-value	p-value	
Mean vs Total	4709.07	1	4709.07			
Linear vs Mean	2664.30	3	888.10	5.34	0.0097	
2FI vs Linear	2237.44	3	745.81	22.89	< 0.0001	Suggested
Quadratic vs 2FI	320.58	2	160.29	17.12	0.0004	
Residual	102.97	11	9.36			
Total	10034.36	20	501.72			

Table S2: ANOVA for the 2FI model for response Degree of sulphonation in RSM.

Source	Sum of Squares	df	Mean Square	F-value	p-value	
Model	4901.74	6	816.96	25.08	< 0.0001	significant
A-Concentration	202.45	1	202.45	6.21	0.0270	
B-Temperature	2027.73	1	2027.73	62.24	< 0.0001	
C-Time	1843.89	1	1843.89	56.60	< 0.0001	
AB	880.34	1	880.34	27.02	0.0002	
AC	146.40	1	146.40	4.49	0.0538	
BC	1114.78	1	1114.78	34.22	< 0.0001	
Residual	423.55	13	32.58			
Cor Total	5325.28	19				

Factor coding is **Coded**.Sum of squares is **Type III – Partial****Table S3:** Data showing the coefficients in terms of coded factors in RSM

Factor	Coefficient Estimate	df	Standard Error	95% CI Low	95% CI High	VIF
Intercept	87.86	1	9.80	66.68	109.04	
A-Concentration	17.56	1	7.05	2.34	32.78	22.85
B-Temperature	82.17	1	10.42	59.67	104.68	30.35
C-Time	90.23	1	11.99	64.32	116.14	37.06
AB	20.03	1	3.85	11.70	28.35	2.56
AC	20.67	1	9.75	-0.3955	41.73	39.77
BC	66.59	1	11.38	42.00	91.18	31.63

Table S4: Data showing the First order, Zero order kinetic, Hopfenberg Model (Erosion Coefficient (m/h) and Ritger -Peppas model of SPEK membrane with Nalidixic acid sodium 1 to 6 hr period.

			Zero order kinetic/ First order	Ritger -Peppas	Hopfenberg Model
Time (mins)	Amount of drug released (mg)	Amount of drug left in t*60e membrane (mg)	fi=1-(Wi/Wo)	n=mi/mo/ko/t	mt/mo=1-[1-k0t/CoAo)n
60	0.95	6.05	3.76*10 ⁻⁵	1	5.96*10 ⁻⁶
120	1	6	1.98*10 ⁻⁵	1	3.14*10 ⁻⁶
180	1.1	5.9	1.45*10 ⁻⁵	1	2.3*10 ⁻⁶
240	1.15	5.85	1.14*10 ⁻⁵	1	1.8*10 ⁻⁶
300	1.15	5.85	9.12*10 ⁻⁶	1	1.44*10 ⁻⁶
360	1.15	5.85	7.6*10 ⁻⁶	1	1.2*10 ⁻⁶
1260	1.35	5.65	2.556*10 ⁻⁶	1	4*10 ⁻⁷
1320	1.35	5.65	2.43*10 ⁻⁶	1	3.9*10 ⁻⁷
1380	1.35	5.65	2.32*10 ⁻⁶	1	3.7*10 ⁻⁷
1440	1.35	5.65	2.223*10 ⁻⁶	1	3.5*10 ⁻⁷

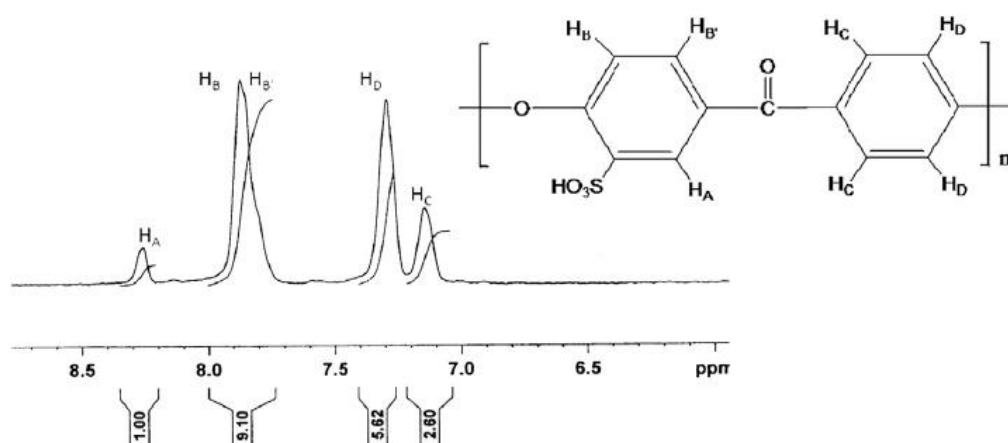


Figure S1: ¹H-NMR magnification of sample 2 obtained with the reaction at 100°C for 6 hr.