

Composition Effects on the Morphology of PVA/Chitosan Electrospun Nanofibers

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Table S1: Parameters data of the nanofibers produced by electrospinning in this study.

Sample	PVA (% w/w)	Chitosan (% w/w)	Solvent	Production Time (h)	Proportion (PVA:CS)	Needle Inner Diameter (mm)	Temperature (°C)/ Relative Humidity (%)
P1	7	4	Water	-	75:25	-	-
P2	7	4	Water	-	50:50	-	-
P3	7	4	Water	-	25:75	-	-
P4	12	4	Water	-	75:25	-	-
P5	12	4	Water	-	50:50	-	-
P6	12	4	Water	-	25:75	-	-
0	7	4	AcOH	3	75:25	0.3	-
1	7	4	Water	2	75:25	0.6	-
2	7	4	AcOH	2	75:25	0.6	-
3	7	4	AcOH	2	75:25	0.6	-
4	7	4	Water	2	75:25	0.6	-
5	7	4	Water	2	75:25	0.6	-
6	12	4	Water	2	75:25	0.6	-
7	12	4	Water	2	75:25	0.6	-
8	7	4	AcOH	2	75:25	0.6	-
9	7	1	AcOH	2	75:25	0.6	-
10	12	1	Water	2	75:25	0.6	-
11	7	1	AcOH	2	75:25	0.6	-
12	7	1	AcOH	2	75:25	1.2	-
13	12	1	AcOH	3	75:25	0.6	-
14	7	2	AcOH	2	75:25	0.7	-
A	7	4	Water	3	75:25	0.7	-
B	12	1	Water	3	75:25	0.7	-
9.0 0.25	12	1	AcOH	3	75:25	0.55	-
9.0 0.50	12	2	AcOH	3	75:25	0.55	26.3/34
9.0 0.75	12	3	AcOH	3	75:25	0.55	-
9.0 1.00	12	4	AcOH	3	75:25	0.55	-
7.5 0.25	10	1	AcOH	3	75:25	0.55	-
7.5 0.50	10	2	AcOH	3	75:25	0.55	-
7.5 0.75	10	3	AcOH	3	75:25	0.55	25.0/39
7.5 1.00	10	4	AcOH	3	75:25	0.55	-
6.0 0.25	8	1	AcOH	3	75:25	0.55	24.2/45
6.0 0.50	8	2	AcOH	3	75:25	0.55	24.9/42
6.0 0.75	8	3	AcOH	3	75:25	0.55	23.8/39
6.0 1.00	8	4	AcOH	3	75:25	0.55	25.8/35
4.5 0.25	6	1	AcOH	3	75:25	0.55	22.7/35

4.5 0.50	6	2	AcOH	3	75:25	0.55	21.6/39
4.5 0.75	6	3	AcOH	3	75:25	0.55	22/38
4.5 1.00	6	4	AcOH	3	75:25	0.55	23.5/38
PP6.2	6	2	AcOH	3	75:25	0.55	25.3/46
PP8.2	8	2	AcOH	3	75:25	0.55	24.9/42
PP8.4	8	4	AcOH	3	75:25	0.55	-
PP10.2	10	2	AcOH	3	75:25	0.55	-
PP12.1	12	1	AcOH	3	75:25	0.55	-

Table S2: Data obtained by the rheological analysis of samples solutions described at the **Table 1**.

Sample	Consistency index – K (dyn.cm ⁻² .s)	Flow index – n (dimentionless)	Reduced Chi- Sqr	R-Square (COD)	Adj. R-Square
CS 0.25 ->	0.38 ± 0.07	0.63 ± 0.06	2.02	0.99	0.98
CS 0.25 <-	0.09 ± 0.02	1.01 ± 0.08	3.06	0.98	0.98
CS 0.50 ->	0.40 ± 0.05	0.70 ± 0.04	0.50	0.99	0.99
CS 0.50 <-	0.21 ± 0.02	0.88 ± 0.04	29.31	0.98	0.98
CS 0.75 ->	0.52 ± 0.03	0.74 ± 0.02	1.40	0.99	0.99
CS 0.75 <-	0.27 ± 0.05	0.91 ± 0.05	9.22	0.99	0.99
CS 1.00 ->	0.57 ± 0.03	0.83 ± 0.01	0.02	1.00	1.00
CS 1.00 <-	0.33 ± 0.03	0.97 ± 0.03	0.06	0.99	0.99
PVA 4.5 ->	2.18 ± 0.06	0.91 ± 0.01	11.27	1.00	0.99
PVA 4.5 <-	2.08 ± 0.14	0.94 ± 0.03	49.54	0.99	0.99
PVA 6.0 ->	5.36 ± 0.12	0.94 ± 0.02	0.07	1.00	0.99
PVA 6.0 <-	6.40 ± 1.76	0.84 ± 0.21	41.99	0.70	0.67
PVA 7.5 ->	16.27 ± 0.22	1.09 ± 0.03	1.55	0.99	0.99
PVA 7.5 <-	20.81 ± 0.35	0.82 ± 0.03	27.79	0.99	0.99
PVA 9.0 ->	72.52 ± 24.60	0.87 ± 0.21	15.92	0.87	0.85
PVA 9.0 <-	73.61 ± 43.27	0.87 ± 0.37	55.29	0.40	0.31
PVA 4.5 CS 0.25 ->	1.016 ± 0.02	0.99 ± 0.01	0.40	0.99	0.99
PVA 4.5 CS 0.25 <-	1.02 ± 0.03	0.99 ± 0.01	0.64	0.99	0.99
PVA 4.5 CS 0.50 ->	4.54 ± 0.15	0.99 ± 0.06	92.07	0.99	0.98
PVA 4.5 CS 0.50 <-	5.25 ± 0.80	0.70 ± 0.19	998.56	0.88	0.86
PVA 4.5 CS 0.75 ->	6.55 ± 1.06	1.09 ± 0.28	117.12	0.95	0.92
PVA 4.5 CS 0.75 <-	8.51 ± 2.11	0.76 ± 0.77	450.54	0.55	0.33
PVA 4.5 CS 1.00 ->	8.04 ± 1.08	0.92 ± 0.24	118.51	0.94	0.90
PVA 4.5 CS 1.00 <-	10.05 ± 2.46	0.73± 0.49	618.73	0.69	0.53
PVA 6.0 CS 0.25 ->	7.58 ± 0.05	1.00 ± 0.01	28.19	0.99	0.99
PVA 6.0 CS 0.25 <-	8.73 ± 0.13	0.77 ± 0.02	3.06	0.99	0.99
PVA 6.0 CS 0.50 ->	11.02 ± 0.39	0.91 ± 0.05	4.29	0.99	0.99
PVA 6.0 CS 0.50 <-	12.07 ± 0.46	0.79 ± 0.06	20.64	0.97	0.97
PVA 6.0 CS 0.75 ->	14.44 ± 0.34	0.94 ± 0.03	17.86	0.99	0.99
PVA 6.0 CS 0.75 <-	16.92 ± 0.42	0.81 ± 0.03	851.29	0.98	0.97
PVA 6.0 CS 1.00 ->	17.01 ± 0.36	1.08 ± 0.03	7.71	0.99	0.99
PVA 6.0 CS 1.00 <-	24.38 ± 2.21	0.70 ± 0.10	14.79	0.98	0.98

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PVA 7.5 CS 0.25					
->	15.93 ± 0.44	1.07 ± 0.04	0.26	0.99	0.99
PVA 7.5 CS 0.25					
<-	19.33 ± 2.82	0.87 ± 0.20	14.32	0.80	0.77
PVA 7.5 CS 0.50					
->	28.13 ± 1.51	0.84 ± 0.03	0.51	0.99	0.99
PVA 7.5 CS 0.50					
<-	24.28 ± 1.52	0.90 ± 0.03	0.97	0.99	0.99
PVA 7.5 CS 0.75					
->	68.13 ± 4.79	0.78 ± 0.03	15.16	0.99	0.99
PVA 7.5 CS 0.75					
<-	49.08 ± 6.75	0.91 ± 0.07	34.33	0.98	0.97
PVA 7.5 CS 1.00					
->	59.80 ± 2.21	0.80 ± 0.02	955.23	0.99	0.99
PVA 7.5 CS 1.00					
<-	46.60 ± 5.00	0.91 ± 0.05	71.20	0.99	0.99
PVA 9.0 CS 0.25					
->	41.39 ± 1.72	0.86 ± 0.02	4.97	0.99	0.99
PVA 9.0 CS 0.25					
<-	39.52 ± 2.74	0.87 ± 0.04	5.94	0.99	0.99
PVA 9.0 CS 0.50					
->	57.99 ± 3.41	0.84 ± 0.04	1.96	0.99	0.99
PVA 9.0 CS 0.50					
<-	55.19 ± 9.98	0.86 ± 0.12	33.04	0.90	0.89
PVA 9.0 CS 0.75					
->	74.09 ± 1.86	0.83 ± 0.01	4.49	0.99	0.99
PVA 9.0 CS 0.75					
<-	44.90 ± 1.65	1.06 ± 0.09	0.18	0.99	0.99
PVA 9.0 CS 1.00					
->	98.68 ± 4.04	0.80 ± 0.02	151.63	0.99	0.99
PVA 9.0 CS 1.00					
<-	101.85 ± 5.44	0.78 ± 0.03	3601.34	0.99	0.99
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Table S3: Qualitative analysis of fibers electrospinnability as described at the **Table 1**.

PVA content (% w/w)	Chitosan Content (% w/w)			
	0.25	0.50	0.75	1.00
4.5	++	+++	+	++
6.0	+	+++	++	+++
7.5	+++	++	++	++
9.0	+++	++	+	+

*+++; Good fiber mat formation; **: medium fiber mat; poor fiber mat formation.

Table S4: pH of the sample solutions described at the **Table 1**.

PVA content (% w/w)	Chitosan content (% w/w)							
	0.25		0.50		0.75		1.00	
	Mean	Deviation	Mean	Deviation	Mean	Deviation	Mean	Deviation
4.5	1.113	0.041	1.340	0.151	1.24	0.120	1.550	0.046
6.0	1.290	0.030	1.486	0.040	1.44	0.052	1.570	0.052
7.5	1.483	0.035	1.546	0.006	1.63	0.040	1.527	0.040
9.0	1.406	0.105	1.433	0.042	1.52	0.067	1.573	0.067

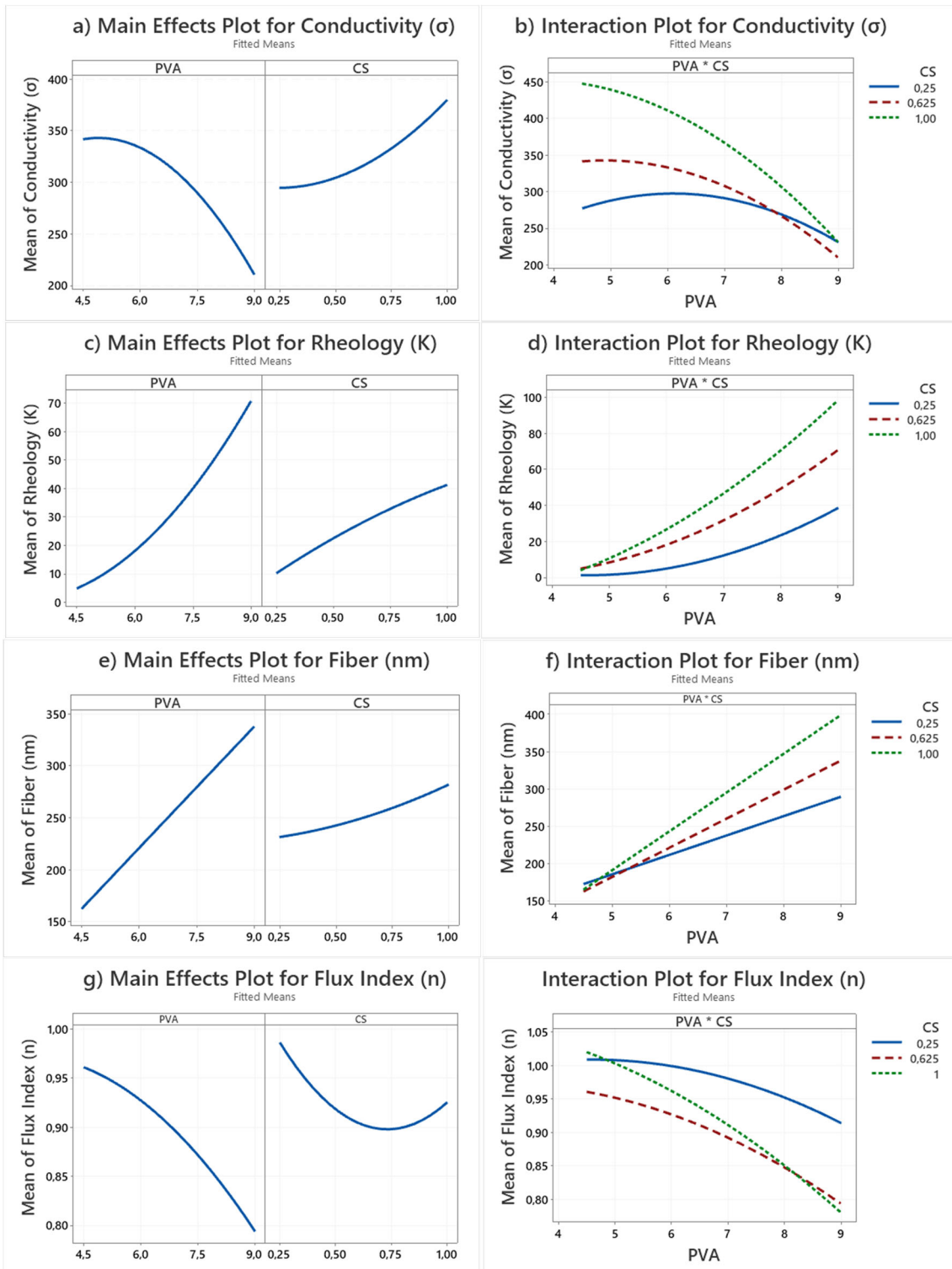


Figure S1 Main Effects and the resulting Interaction Plot for each variable, respectively, being: (a) and (b) Electrical Conductivity; (c) and (d) Rheology Consistency Index; (e) and (f) Fiber Diameter; and (g) and (h) Flow Index.