

Research article

Electrospinning of chitosan from different acid solutions

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Supplementary

Table S-1. Non-controlled variables during electrospinning.

Organic acid	Acid concentration, vol%	Chitosan concentration, wt%	Relative humidity, %	Temperature, °C
	1	1	34.5/35.0	27.0/27.5
Acetic acid	1	4	28.5/32.0	29.0/29.0
	90	1	34.5/37.0	27.5/26.0
	90	4	32.0/32.0	27.5/28.0
	1	1	57.0/55.5	25.5/25.5
Formic acid	1	4	53.0/48.5	25.5/26.0
	90	1	60.0/54.0	25.0/25.5
	90	4	56.4/53.4	25.0/25.5
	1	1	47.0/44.0	25.5/26.5
Lactic acid	1	4	41.5/38.5	26.5/27.0
	90	1	43.0/42.0	25.5/26.0
	90	4	41.5/39.5	26.5/26.5
	1	1	43.5/33.0	26.5/27.0
Citric acid	1	4	-	-
	90	1	48.5/38.0	25.5/27.0
	90	4	56.0/50.0	24.0/26.0

*Note: Values shown are from the two replicas.

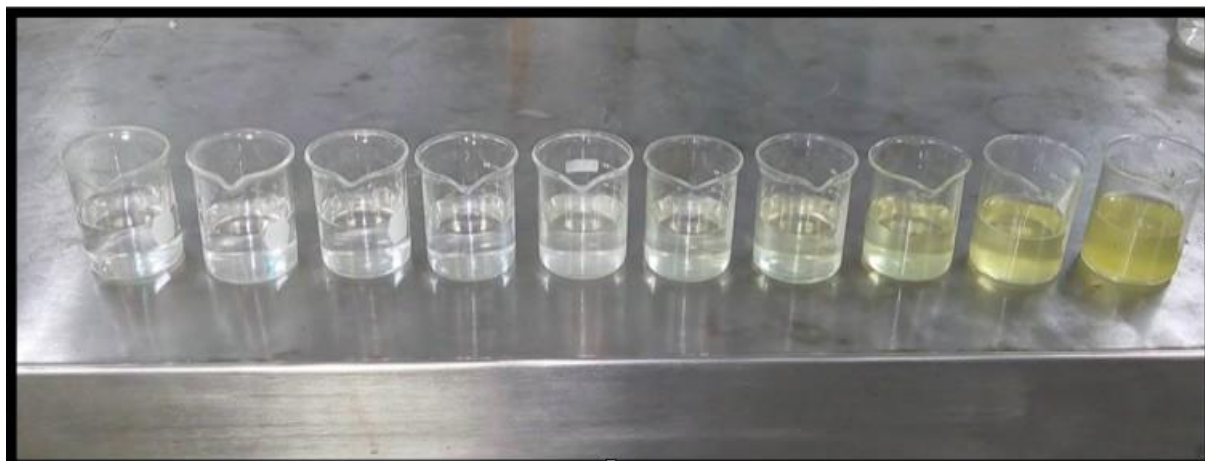


Figure S-1. Chitosan solutions in acetic acid for measuring conductivity at low polymer concentration.

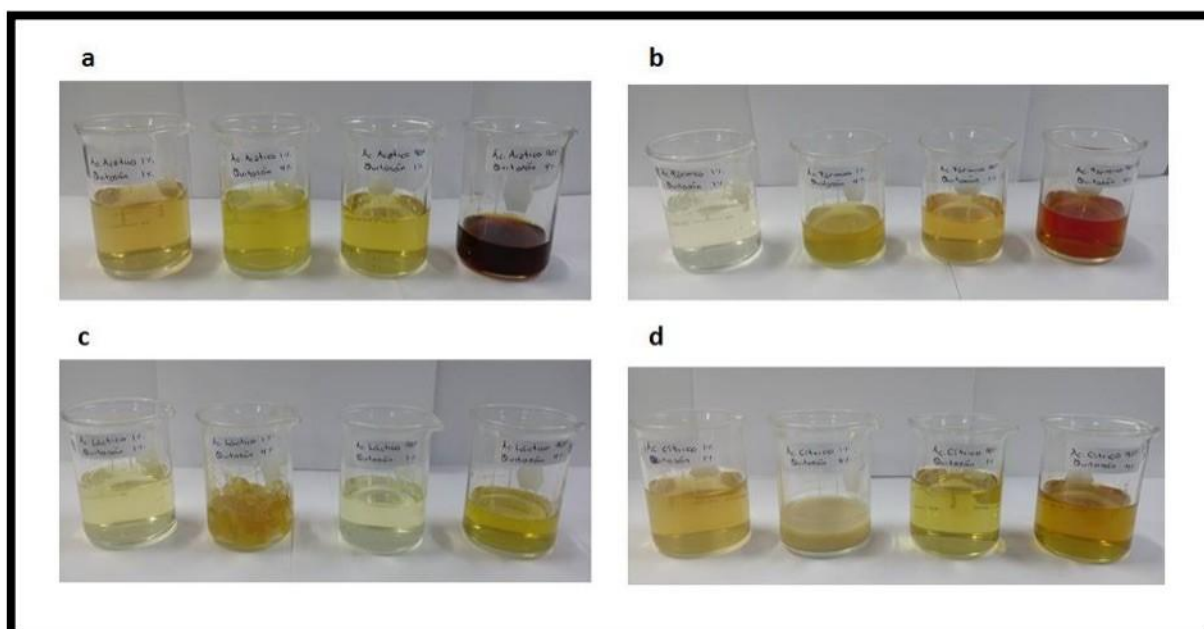


Figure S-2. Chitosan solutions in different organic acids: (a) acetic acid, (b) formic acid, (c) lactic acid, and (d) citric acid. Solutions are in this sequence: acid 1% CTS 1%, acid 1% CTS 4%, acid 90% CTS 1%, and acid 90% CTS 4%. Note that citric acid solution at 1% does not dissolve 4% chitosan.

Table S-2. Conductivity and pH results for impedance measurement solutions.

Organic acid	Acid concentration, vol%	Chitosan concentration, wt%	k, mS/m	pH
Acetic acid $pK_a = 4.76$	1	1	315(15.56)	5.74(0.05)
	1	4	379(1.41)	5.97(0.09)
	90	1	13.5(0.44)	0.83(0.01)
	90	4	41.6(8.84)	1.48(0.21)
Formic acid $pK_a = 3.75$	1	1	191(8.49)	2.90(0.16)
	1	4	598(16.97)	4.29(0.10)
	90	1	245(19.09)	NEG
	90	4	407(24.04)	NEG
Lactic acid $pK_a = 3.86$	1	1	127(0.21)	3.57(0.07)
	1	4	185(1.13)	6.23(0.07)
	90	1	5.45(0.40)	0.33(0.05)
	90	4	25.5(4.95)	1.19(0.08)
Citric acid $pK_{a1} = 3.08$ $pK_{a2} = 4.74$ $pK_{a2} = 5.4$	1	1	151(3.4)	3.32(0.04)
	1	4	16.5(1.65)	6.24(0.10)
	90	1	384(10.61)	0.61(0.07)
	90	4	216(19.80)	0.69(0.11)

*Note: Standard deviation in parenthesis.



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