

Supplementary material for:

Curcumin-laden crosslinked chitosan–PVA films: The synergistic impact of genipin and curcumin on accelerating wound closure

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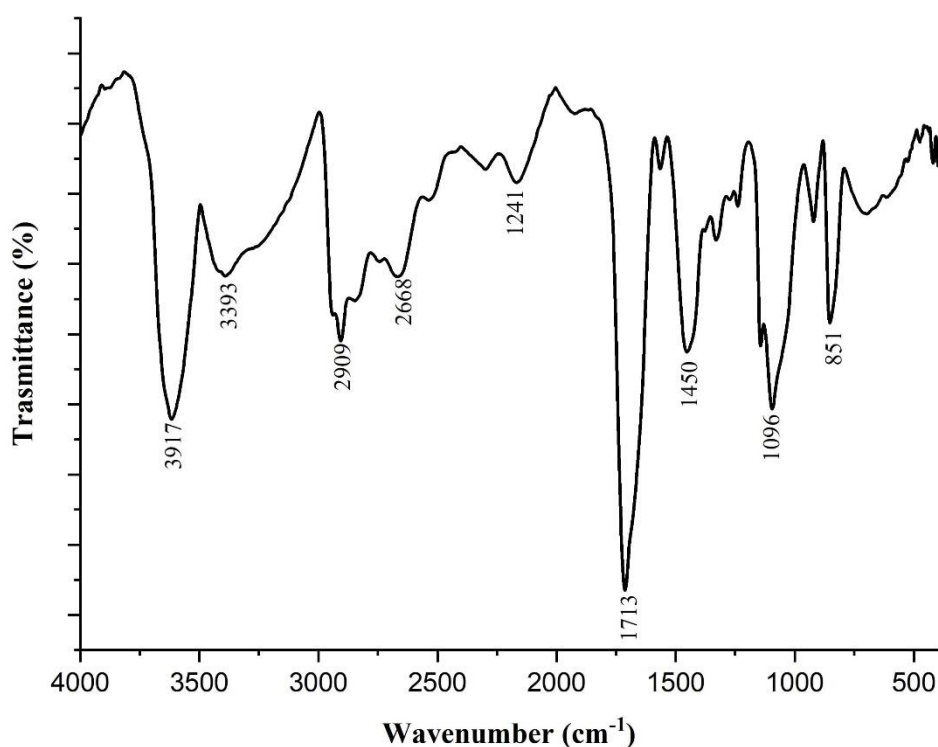
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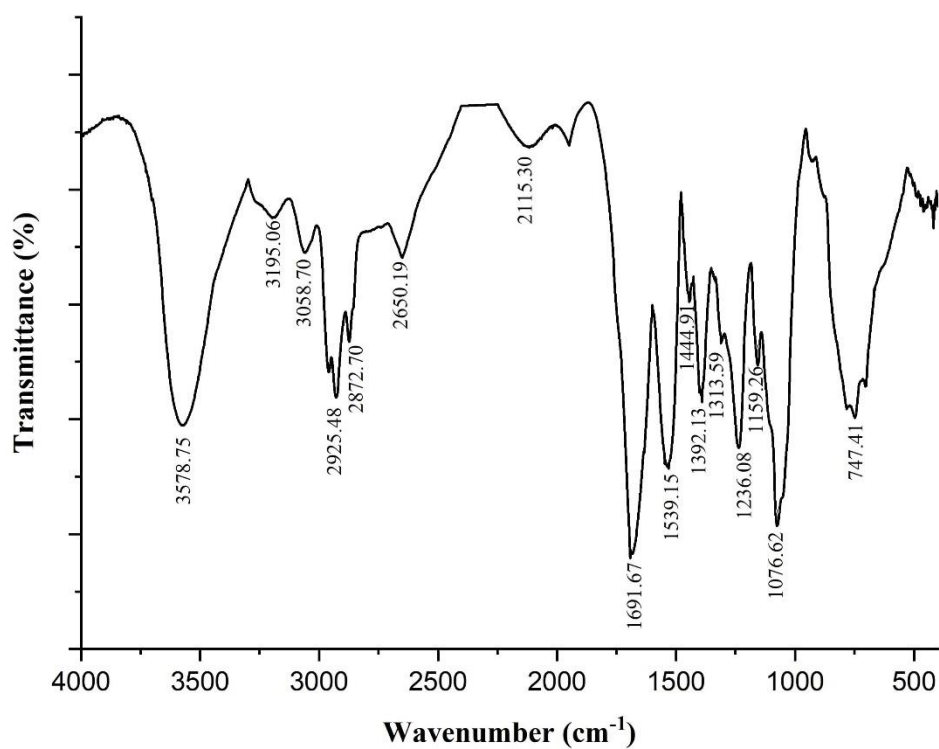
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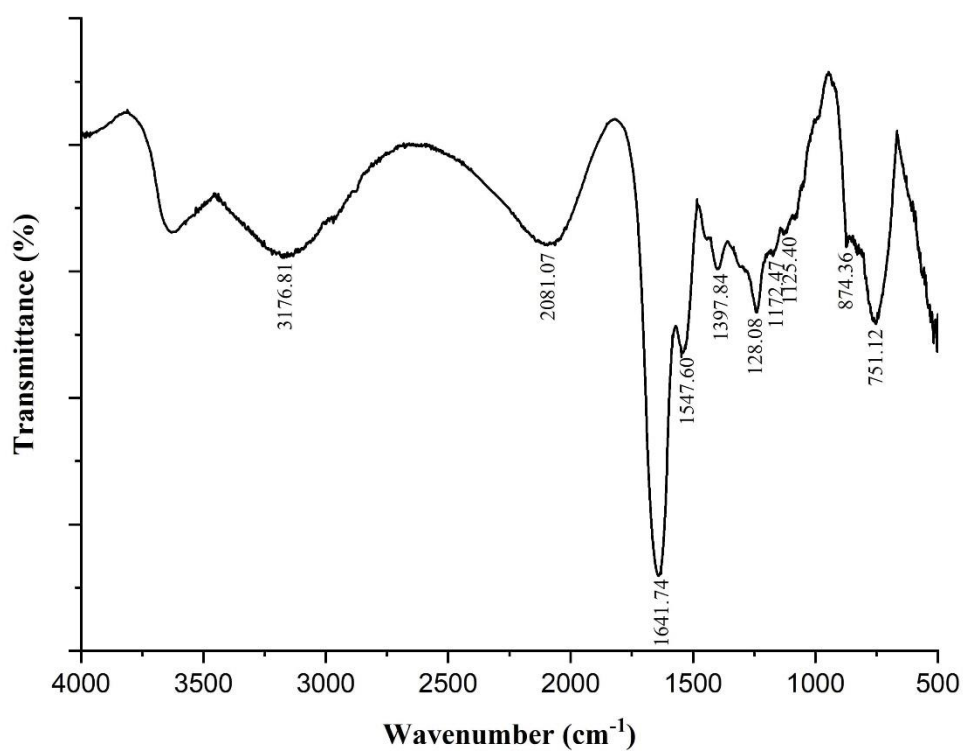
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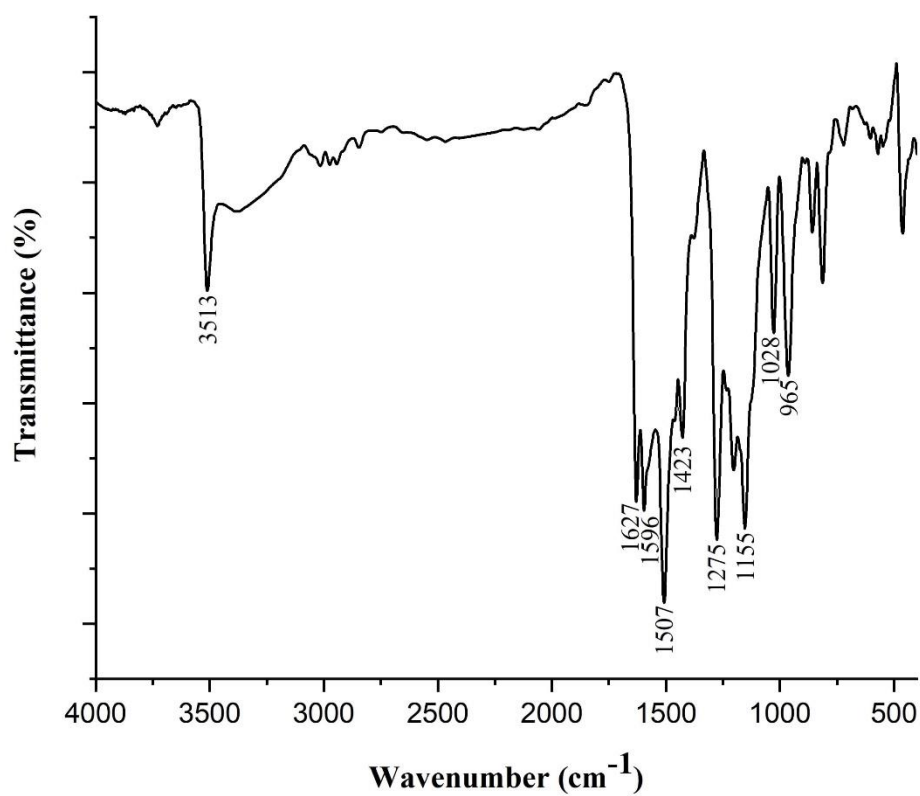
(a)



(b)



(c)



(d)

Figure S1. The IR spectrum of (a) PVA, (b) chitosan, (c) genipin, and (d) curcumin, respectively.

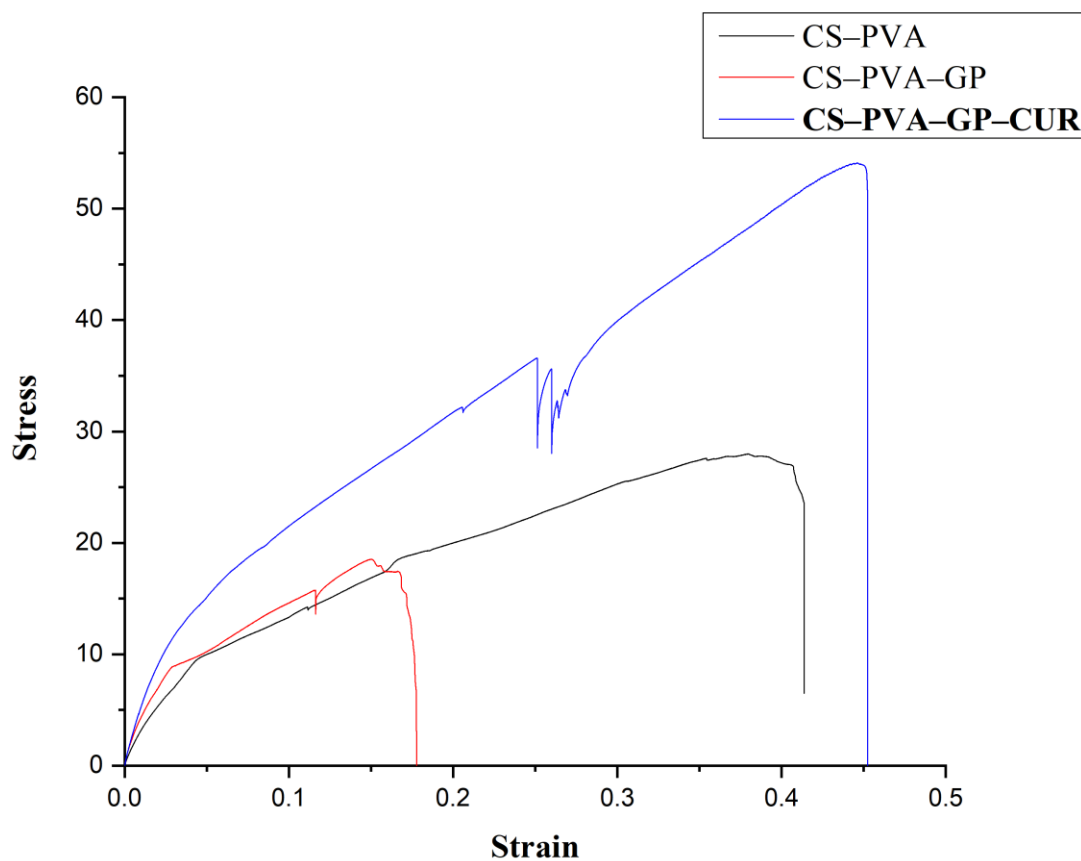


Figure S2. The stress–strain curves of CS–PVA, CS–PVA–GP, and CS–PVA–GP–CUR, respectively.

Table S1. The absorbance of different concentrations of curcumin solution at 430 nm

Concentration ($\mu\text{g/ml}$)	Absorbance (n=3)			Average $\pm$ SD
2	0.1194	0.1197	0.1193	0.1195 ± 0.0002
4	0.2594	0.2595	0.2591	0.2593 ± 0.0002
6	0.4243	0.4241	0.4238	0.4241 ± 0.0003
8	0.5962	0.596	0.5958	0.596 ± 0.0002
10	0.7506	0.7502	0.7508	0.7504 ± 0.0003

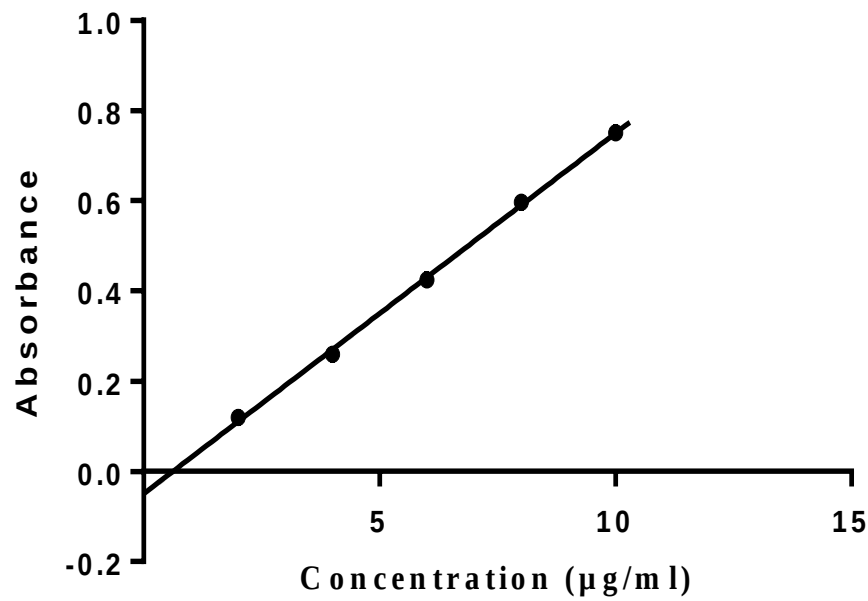


Figure S3. The calibration curve of curcumin at 430 nm

The slope of the regressed line = 0.0799

Correlation coefficient (r^2) = 0.999

The equation for the regressed line $y = 0.0799x - 0.05$

where x = Concentration ($\mu\text{g/ml}$), y = Absorbance

Table S2. The cumulative curcumin release (%) from the chitosan–PVA–genipin–curcumin films

Time (mins)	Absorbance	Concentration ($\mu\text{g/ml}$)	Cumulative % Release
5	0.0714	1.53	4.93 ± 0.89
10	0.0753	1.56	9.95 ± 2.1
15	0.0819	1.67	15.34 ± 1.38
20	0.0873	1.7	20.81 ± 1.64
30	0.0925	1.77	26.51 ± 3.72
60	0.1051	1.95	32.8 ± 2.85

90	0.1175	2.09	39.53 ± 1.22
120	0.1256	2.17	46.52 ± 1.76
180	0.1421	2.35	54.09 ± 3.6
300	0.11	1.98	60.47 ± 1.93
480	0.1096	2	66.91 ± 2.72
1440	0.114	2.06	73.55 ± 1.58

Table S3. The % wound contraction values corresponding to Figure 9

% Wound Contraction											
Animals		Day 1	Day 3	Day 5	Day 7	Day 10	Day 12	Day 14	Day 16	Day 18	Day 21
Control Group	A1	100	115.7	103.5	94.1	-	-	-	-	-	-
	A2	100	109.6	94.3	86.3	83.3	58.6	17.6	13.5	9.4	3.1
	A3	100	113.5	87.1	69.8	21.4	17.3	10.2	7.8	4.1	1.8
	A4	100	114.7	85.1	80.6	21.0	16.9	8.8	-	-	-
	A5	100	113.1	89.2	71.4	24.5	16.5	11.2	8.0	5.1	2.9
	A6	100	110.6	85.5	66.3	24.1	17.8	9.4	7.1	5.5	3.3
Group I	G1	100	141	104.5	66.3	-	-	-	-	-	-
	G2	100	92.7	87.6	72.4	45.7	21.4	11.2	7.1	3.7	1.4
	G3	100	114.5	98.2	79.4	51	29	19.4	12.2	8.6	2.4
	G4	100	138.6	115.3	54.3	22.7	17.6	12.7	-	-	-
	G5	100	100.8	98	43.3	31.6	22.7	7.3	4.7	3.3	1
	G6	100	131.6	112.9	68	19.6	14.9	11.2	10	7.1	0.6
Group II	C1	100	127.6	63.3	35.3	-	-	-	-	-	-
	C2	100	137.1	52.9	39.2	31.6	19.6	14.1	4.9	3.9	1.8
	C3	100	123.5	104.5	80.2	32.7	15.3	9.2	7.1	4.1	2.7
	C4	100	122.9	86.7	67.1	28.8	16.9	5.9	-	-	-
	C5	100	132.9	108.6	44.9	16.3	19.4	13.1	4.7	2.9	1
	C6	100	108.2	129.4	70.4	29.2	20.2	13.1	9.4	3.9	1.2

(-): indicates that biopsies were taken, thus preventing further wound contraction (original wound size is 4.90 cm²)