Supplementary materials

Table S1.Recipes for a series of dosage forms

Formation	Agent type	Ingredients		Drug content (w/w)
		PVA(w/w)	CS(w/w)	
F1	1% CS	/	1%	/
F2	5%PVA	5%	/	/
F3	BFFS	5%	1%	/
F4	LFFS(0%CS)	5%	/	0.5%
F5	LFFS(0%PVA)	/	1%	0.5%
F6	LFFS(2.5%PVA)	2.5%	1%	0.5%
F7	LFFS(5%PVA)	5%	1%	0.5%
F8	LFFS(7.5%PVA)	7.5%	1%	0.5%
F9	LFFS(10%PVA)	10%	1%	0.5%
F10	BZL	/	/	0.5%

Table S2. MIC value of a series of dosage forms

Formation.	Agent type	Concentration of BZL content in a series of dosage forms(μg/mL)									MIC(μg/mL)
		0	0.625	1.43	2.50	3.33	5.0	6.67	10.0	20.0	
F1	1% CS	+	/	/	/	/	/	/	/	/	/
F2	5% PVA	+	/	/	/	/	/	/	/	/	/
F3	BFFS	+	/	/	/	/	/	/	/	/	/
F4	LFFS(0%CS)	/	+	+	-	-	-	-	-	-	2.5
F5	LFFS(0%PVA)	/	+	+	+	+	-	-	-	-	5.0
F6	LFFS(2.5%PVA)	/	+	+	-	-	-	-	-	-	2.5
F7	LFFS(5%PVA)	/	+	-	-	-	-	-	-	-	1.43
F8	LFFS(7.5%PVA)	/	+	+	-	-	-	-	-	-	2.5
F9	LFFS(10%PVA)	/	+	+	-	-	-	-	-	-	2.5
F10	BZL	/	+	+	+	+	-	-	-	-	5.0

+: positive, -: negative.

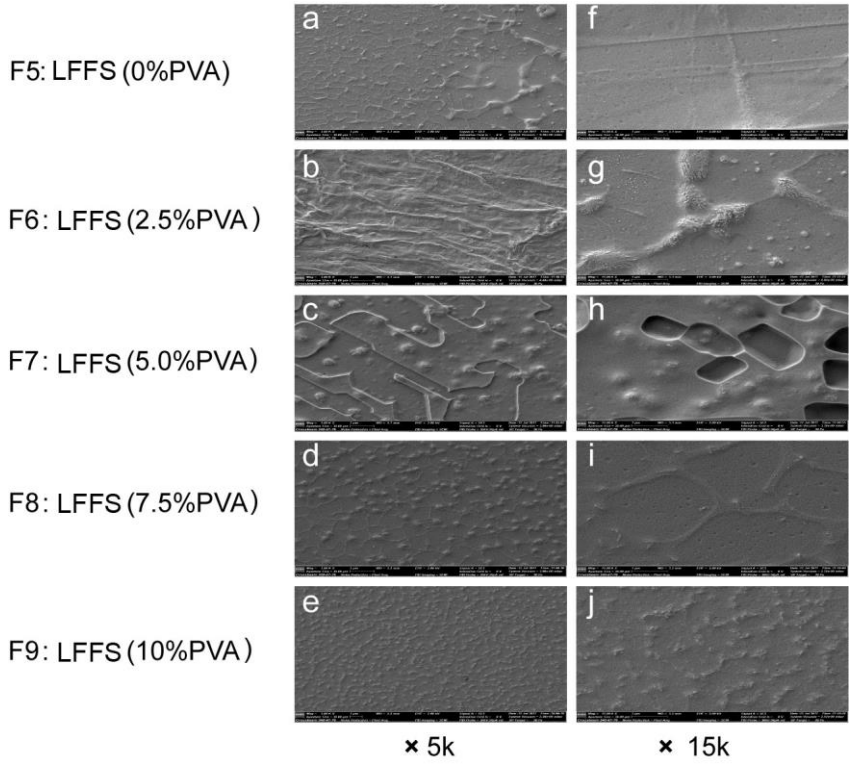

Fig.S1. Morphology of the series of LFFS observe SEM

Notes: The SEM figures of a series of LFFS formations from F5 to F9 containing different contents of PVA diluted 100-fold with water are showed in the Fig. S1a to Fig. S1j. From the SEM figures, F7 (LFFS of 5% PVA) has appeared a different structure which is blocky

and straticulate attaching more drug particles superficially (Fig. S1c and Fig. S1h). However, the other LFFS formulations (0%, 2.5%, 7.5%, 10% PVA) haven't appeared hole structures. F5, F8, F9 all appear dispersed particle states (Fig. S1a, Fig. S1d, and Fig. S1e) and F2 shows a dendrite shape (Fig. S1b) with an amplification of 5k. With an amplification of 15k, the Fig.S1i and Fig. S1j of F8 and F9 (LFFS of 7.5%, 10% PVA) have appeared reticular structures, and F5 is strip-shaped (Fig. S1f), and F6 is fusiform (Fig. S1g).

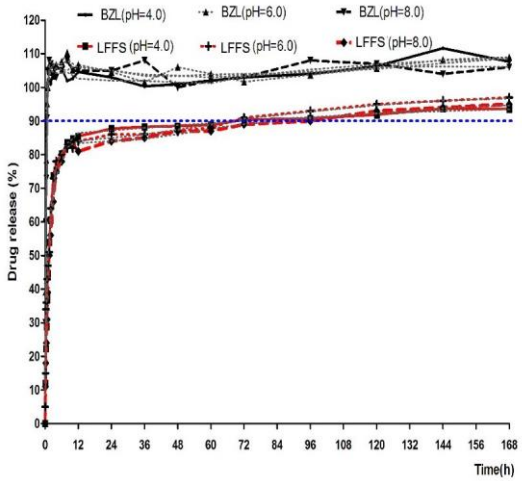

Fig. S2 Effect of different pH values of PBS on BZL release profiles

Notes: The release profiles of LFFS and BZL in PBS at different pH values (pH=4.0, 6.0, 8.0) at 37 °C. When the release rates of BZL at

different pH values (pH=4.0, 6.0, 8.0) come up to 90%, it all cost 45min; however, LFFS need 72h at pH=4.0, 72h at pH=6.0, and 90h at pH=8.0.

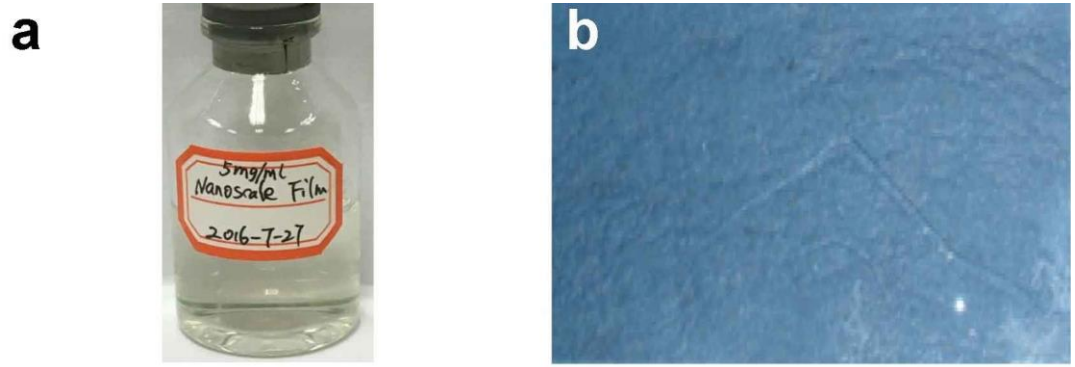

Fig. S3 The appearance and film forming ability.

Notes: (**a**) The LFFS films with 5 mg/mL BZL were transparent and clear. (**b**) We could conclude through the whole process of film formation that the time span of the film formation was 2min and the maintenance time span was approximately 3 to 5 hours on the glass slide.

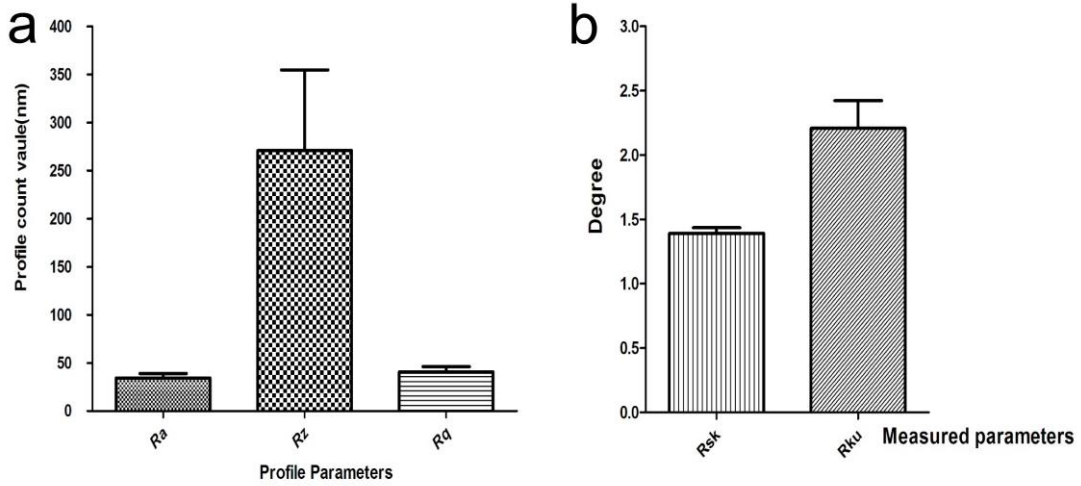

Fig. S4. The AFM parameters of LFFS

Notes: (**a**) The three section parameters, namely, mean square roughness (Rq), mean roughness depth (Rz), mean roughness average (Ra) were 40.541±13.856 nm, 270.95±205.611 nm and 34.304±11.461nm. (**b**) The surveying parameters Kurtosis (Rku) and skewness (Rsk) of LFFS were 2.208±0.525 and 1.392±0.104, respectively.

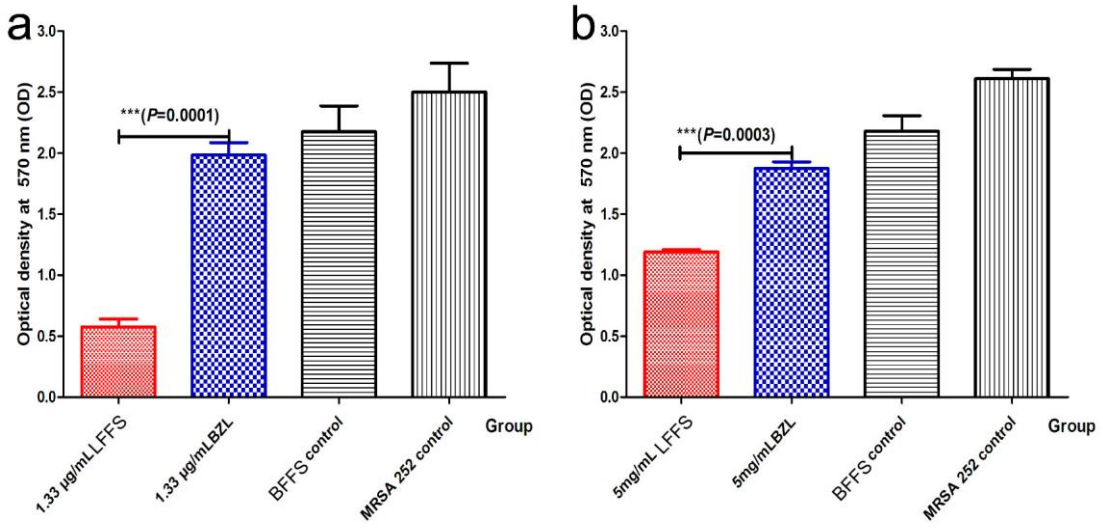

Fig. S5. Biofilms quantification of formatting inhibition and clearance

Notes: (**a**) MRSA biofilm formation was inhibited by exposed to LFFS at 1.33 μg/ml for 24 hours. (**b**) MRSA biofilm was cleared by exposed to LFFS at 5 mg/ml for 8 hours. Compared with BZL, LFFS is much more capable of clearing biofilms. ***P <0.001 represent an extremely significant difference, **P <0.01 represent a significant difference, *P <0.05 represent a difference (n=3).

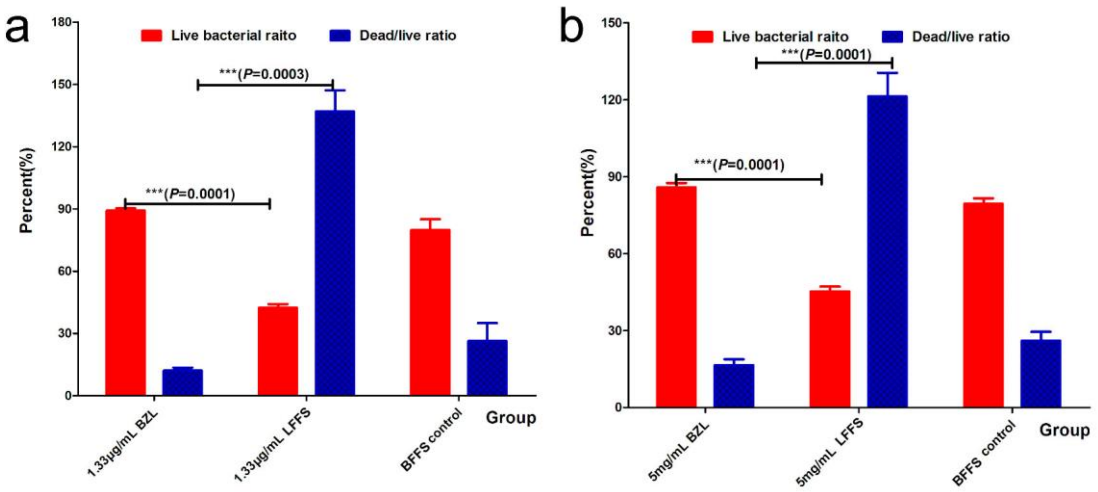

Fig. S6. The live bacteria and dead/live ratio treated with LFFS

Notes: (**a**) Living bacteria ratio in the 1.33 μg/mL BZL disposed samples. (**b**) Living bacteria ratio in the 5 mg/mL BZL disposed samples. It is obvious that LFFS works better in clearance biofilms than BZL. ***P <0.001 represent an extremely significant difference, **P <0.01 represent a significant difference, *P <0.05 represent a difference (n=3).

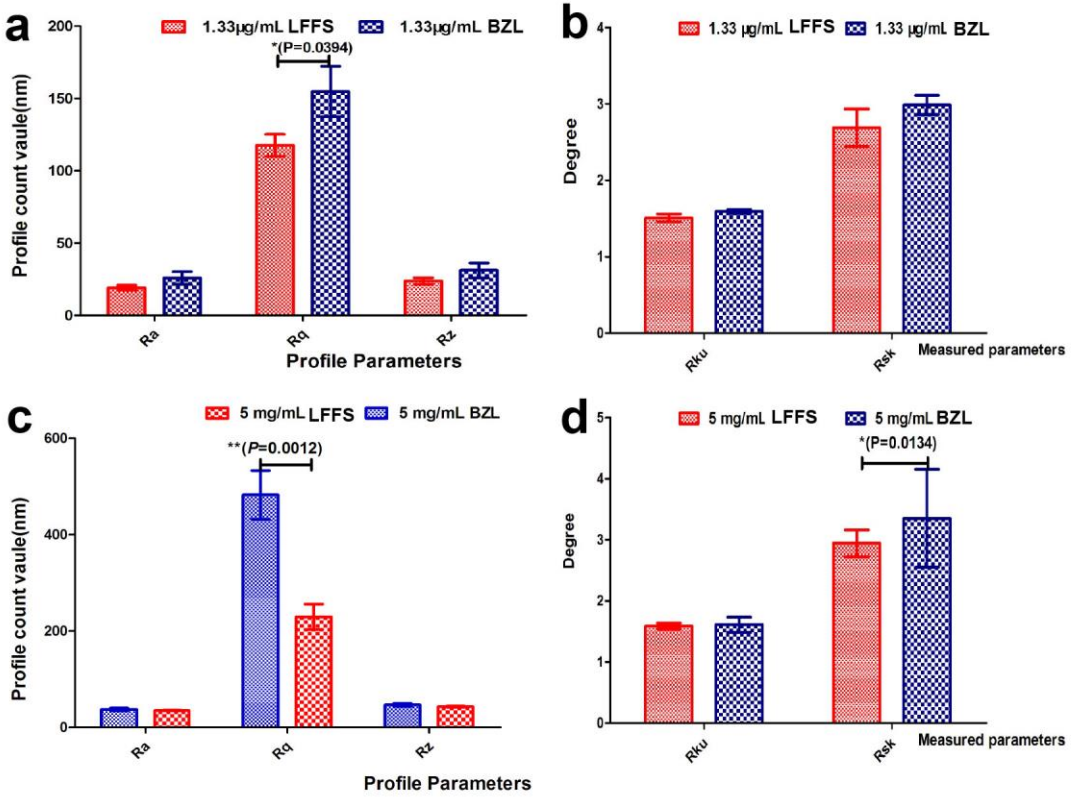

Fig. S7. The three section parameters and surveying parameters of biofilms formation quantification

Notes: (**a**) Rq, Rz and Ra of the biofilms disposed with LFFS and BZL at 1.33 μg/mL. (**b**) Rku and Rsk of the biofilms disposed with LFFS

and BZL at 1.33 μg/mL. (**c**) Rq, Rz and Ra of the biofilms disposed with LFFS and BZL at 5 mg/mL. (**d**) Rku and Rsk of the biofilms disposed with LFFS and BZL at 5 mg/mL. Equally, as clearly implied, the removal competence for biofilms of BZL is mildly less than that of LFFS at the identical density for the identical time. ***P <0.001 represent an extremely significant difference, **P <0.01 represent a significant difference, *P <0.05 represent a difference (n=3).