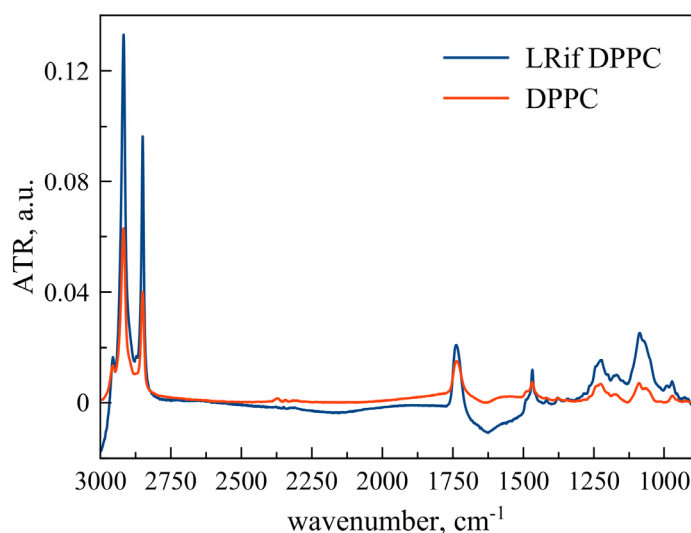


# Supplementary Materials: Combined System for the Simultaneous Delivery of Levofloxacin and Rifampicin: Structural and Functional Properties and Antibacterial Activity

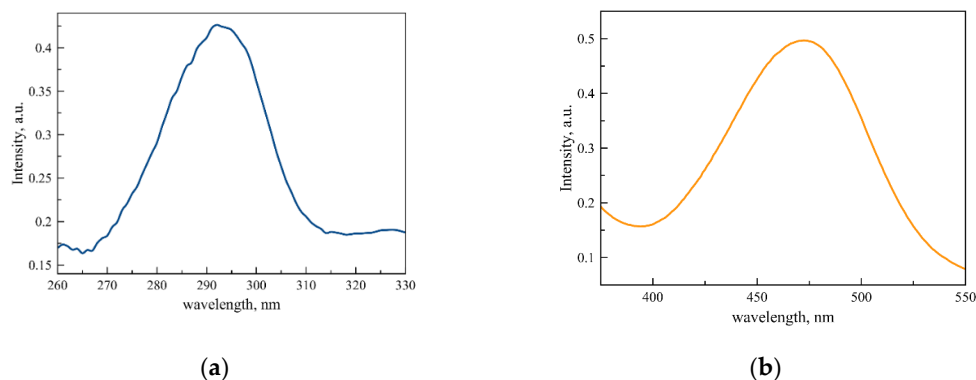
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**Figure S1.** ATR-FTIR spectra of unloaded DPPC liposomes (red line) and DPPC liposomes containing Rif (blue line). Sodium phosphate buffer solution, pH = 7.4, T = 22 °C, lipid concentration 5 mg/mL.



**Figure S2.** UV-VIS spectra of (a) levofloxacin 0.03 mM in 0.1 mM HCl solution (b) Rif 0.03 mM in sodium phosphate buffer solution, pH = 7.4, T = 22 °C.

**Table S1.** The values of the coefficient of determination  $R^2$  obtained by processing using various models of the release curves of liposomal preparations of Rif without a polymer shell and coated with a polymer, Lev in an unmodified  $\beta$ -cyclodextrin derivative and in the complex with  $\text{NH}_2$ -CD-Chit.

System \ Model	Zero Order	The First Order	Korsmeyer-Peppas Model	Hickson-Crowell Model	Higuchi Model
LRif without polymer					
LRif DPPC	0.8649	0.8653	0.8952	0.8572	0.9366
LRif DPPC:CL 80:20	0.8924	0.8928	0.9620	0.8824	0.9606
Mean $R^2$	0.8787	0.8791	0.9286	0.8698	<b>0.9470</b>
LRif in complex with chitosan-based polymer					
LRif DPPC + HP-CD-Chit	0.9801	0.9802	0.9954	0.9420	0.9671
LRif DPPC:CL 80:20 + HP-CD-Chit	0.9407	0.9407	0.9712	0.8860	0.9713
LRif DPPC $\text{NH}_2$ -CD-Chit	0.9569	0.9570	0.9570	0.9307	0.9341
LRif DPPC:CL 80:20 + $\text{NH}_2$ -CD-Chit	0.9719	0.9719	0.9829	0.9231	0.9422
LRif DPPC:CL 80:20 + $\text{NH}_2$ -CD-Chit + Lev	0.9829	0.9829	0.9912	0.8885	0.9566
Mean $R^2$	0.9665	0.9665	<b>0.9795</b>	0.9141	0.9543
Lev – CD complex					
Lev- $\text{NH}_2$ -CD	0.7009	0.7019	-	0.6933	<b>0.9192</b>
Lev – CD-Chit complex					
Lev- $\text{NH}_2$ -CD-Chit	0.9355	0.9359	0.9850	0.9185	0.9959
LRif DPPC:CL 80:20 + $\text{NH}_2$ -CD-Chit + Lev	0.9344	0.9347	0.9926	0.9158	0.9952
Mean $R^2$	0.9350	0.9353	0.9888	0.9172	<b>0.9956</b>