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Supplementary Information

Linezolid@MOF-74 as a host-guest system with antimicrobial activity

Dalia Ramos,[a‡] Javier Aguila-Rosas,[a‡] Carlos T. Quirino-Barreda,[a] Alfonso Santiago-Tellez,[b] Hugo A. Lara-García,[c] Ariel Guzmán,[d*] Ilich A. Ibarra[e*] and Enrique Lima[e*]

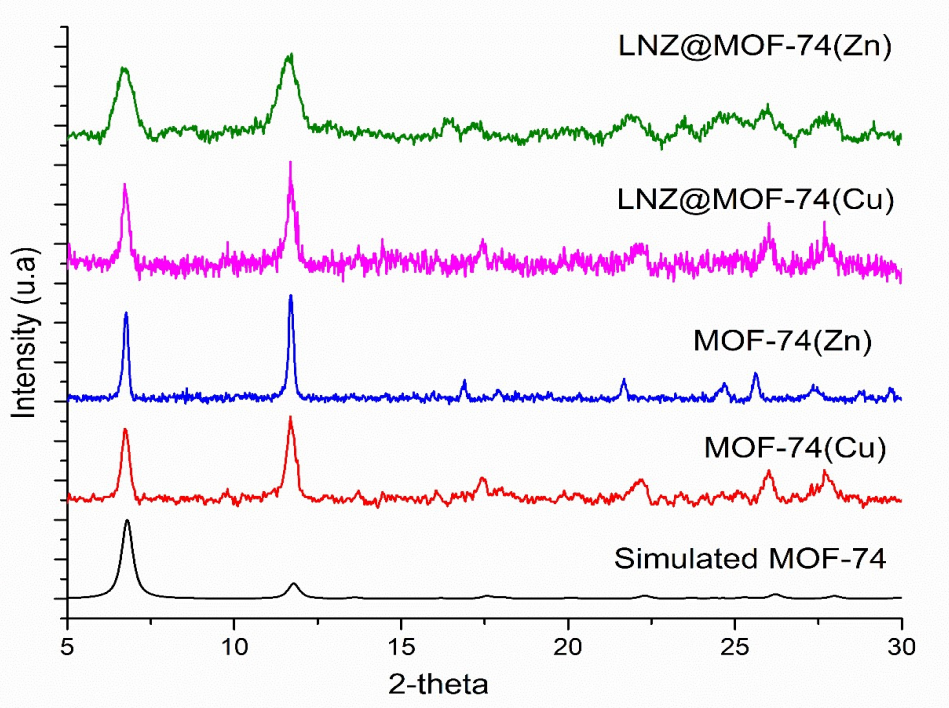


Figure S1. Experimental and simulated XRD patterns of the MOF-74(Cu), MOF-74(Zn), LNZ@MOF-74(Cu) and LNZ@MOF-74(Zn).

Table S1. Experimental loading conditions of LNZ on MOF-74.

Treatment	Molar ratio MOF:LNZ	Time of encapsulation (h)	Employed solvent	% LNZ loading/ MOF-74	
				Zn	Cu
1	1:0.5	12	Methanol	0.38	0.17
2	1: 1	12	Methanol	1.78	0.19
3	1: 1	12	Acetonitrile	3.66	1.61
4	1: 1	24	Methanol	2.30	0.48
5	1: 1	24	Acetonitrile	5.36	2.02
6	1: 1	24	Methanol	3.21	2.23
7	1: 1	48	Methanol	1.60	0.35
8	1: 2	12	Methanol	3.01	1.08
9	1: 2	24	Methanol	4.96	1.76

Acetonitrile: Class 2 solvent, carcinogenic and non-genotoxic substances, or possible agents causing other irreversible toxicities such as neurotoxicity or teratogenicity in animals. Solvents thought to cause other significant but reversible toxicities

Methanol: Class 3 solvent, substances with low toxic potential for humans; a health-based exposure limit is not necessary. Residual Class 3 solvents may have exposure up to 50 mg per day

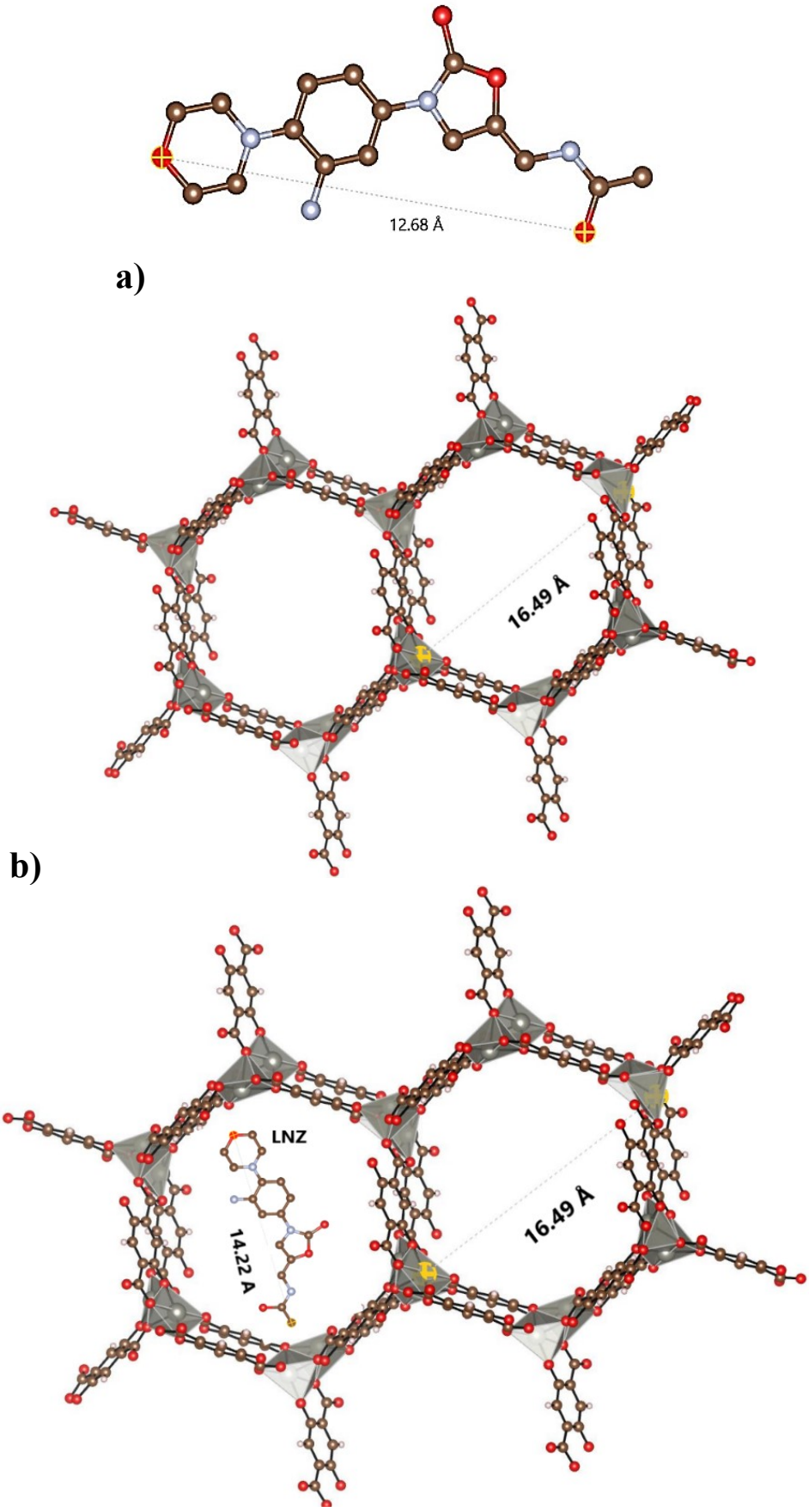


Figure S2. Structural molecule of linezolid a) LNZ, b) MOF-74 and c) interaction LNZ@MOF-74.

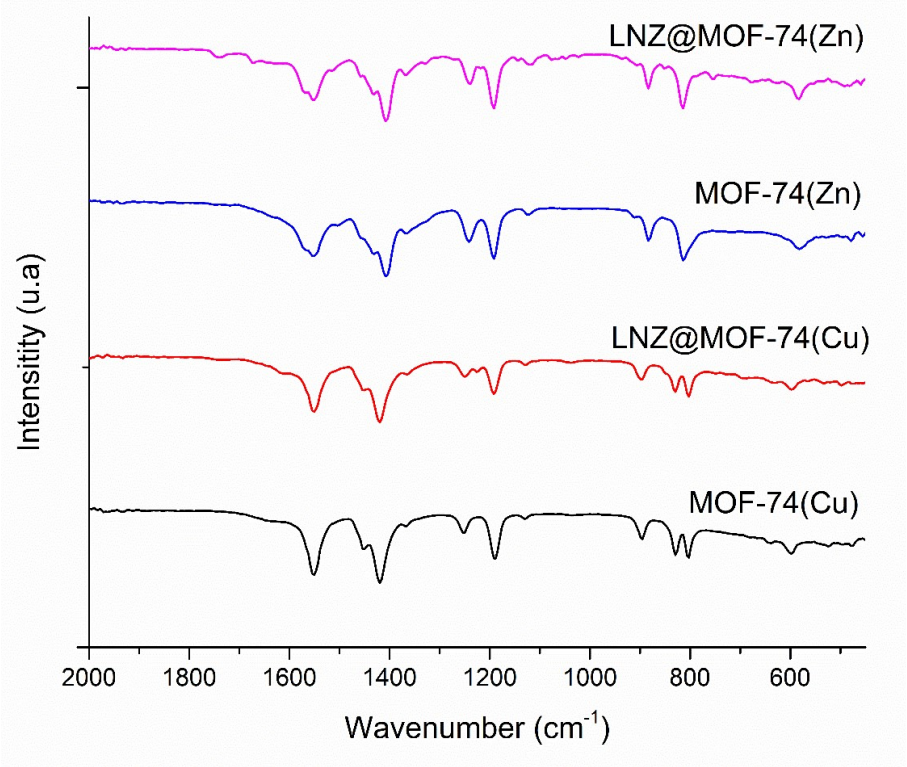


Figure S3. Experimental IR of the MOF-74(Cu), LNZ@MOF-74(Cu), MOF-74(Zn) and LNZ@MOF-74(Zn).

Figure S4. Degradation of structure of the MOF-74(Cu).

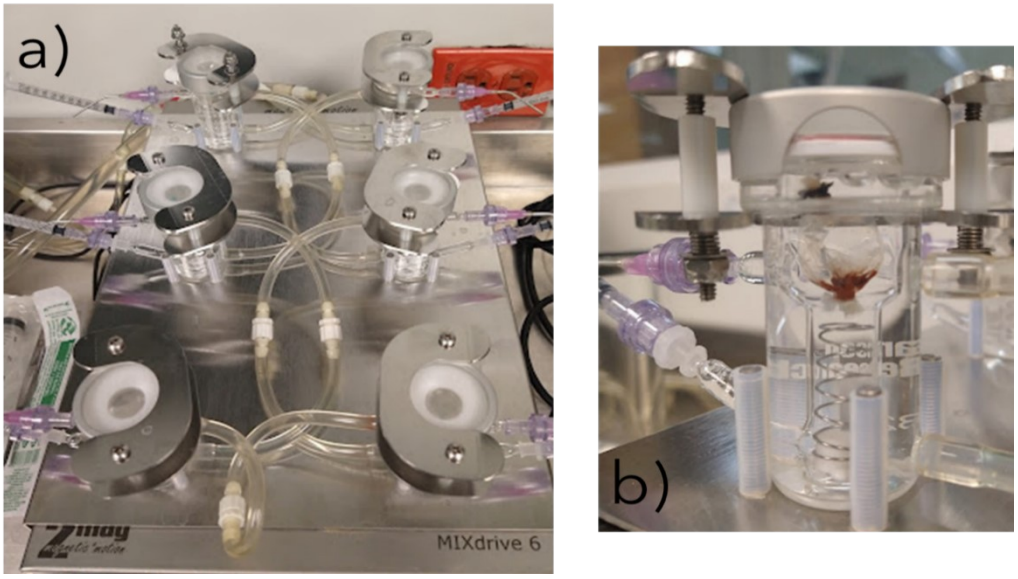


Figure S5. a) Evaluating delivery system for linezolid (LNZ) in PBS (pH 5.4 and 7.4) b) Zoom-membrane.

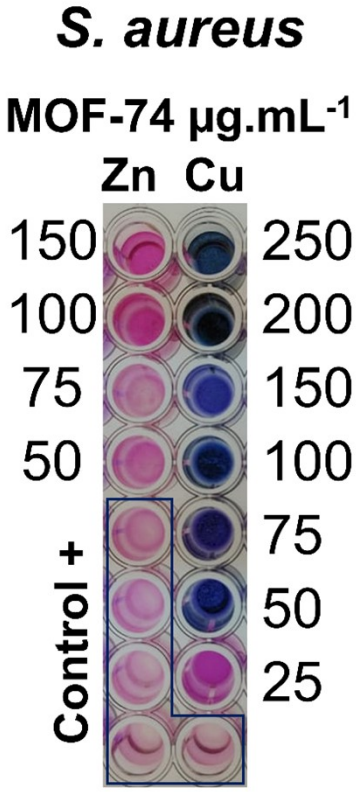


Figure S6. Growth inhibition analysis of MOF-74(Zn) y MOF-74(Cu) against S. aureus, using the alamar Blue assay. 5 h of incubation of bacteria/MOF-74 empty, pink coloration indicative of bacterial growth. Control positive of bacteria incubation with alamar Blue.

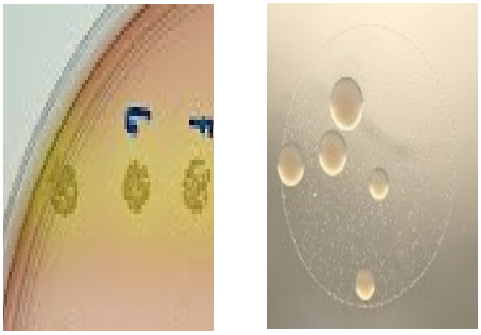
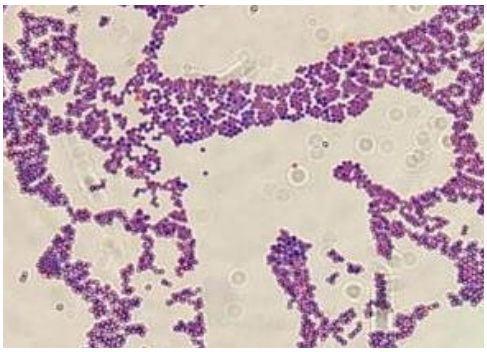
Microorganism: *S. aureus* ATCC 6538
Bacteria- Gram positive
Morphology
Macroscopic image
Isolation in selective medium (MSA) with color change of mannitol to yellow. Round colonies with well-defined edges, convex, serous, opaque yellow.

Microscopic image
Gram-positive cocci grouped in irregular clusters. 

Figure S7. Phenotypic characteristics observed in the strains used in this study. The images shown were obtained with the study strains during the performance of the experiments.

The Bio-MOF accumulated at the bottom of the cylinder, so it does not diffuse into the agar, so it was not feasible to perform the Kirby-Bauer method (diffusion method in agar) and consequently the alamar blue colorimeter method was used.

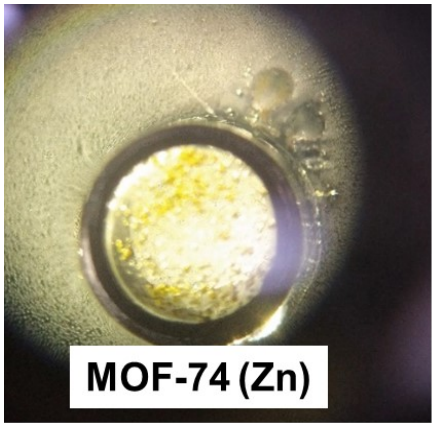


Figure S8. Evaluation of diffusion of MOF-74 in agar in the presence of S. aureus.

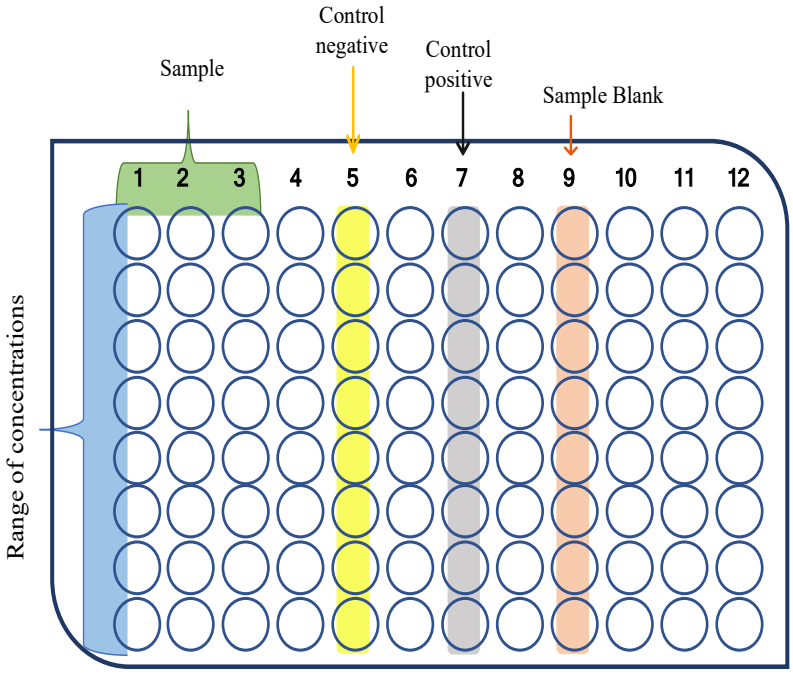


Figure S9. Microbiology test experimental design.