Supporting Information

A High-Copper-Content Metal-Organic Framework with Potential Antibacterial Activities

Boya Liu[a*], Xueqi Zheng[a]

[a]Qing Pu Hospital Affiliated to Fudan University, Shanghai 201700, P. R. China

[*]E-mail: liu.boya@qphospital.com

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Section 1. Supplementary Figures

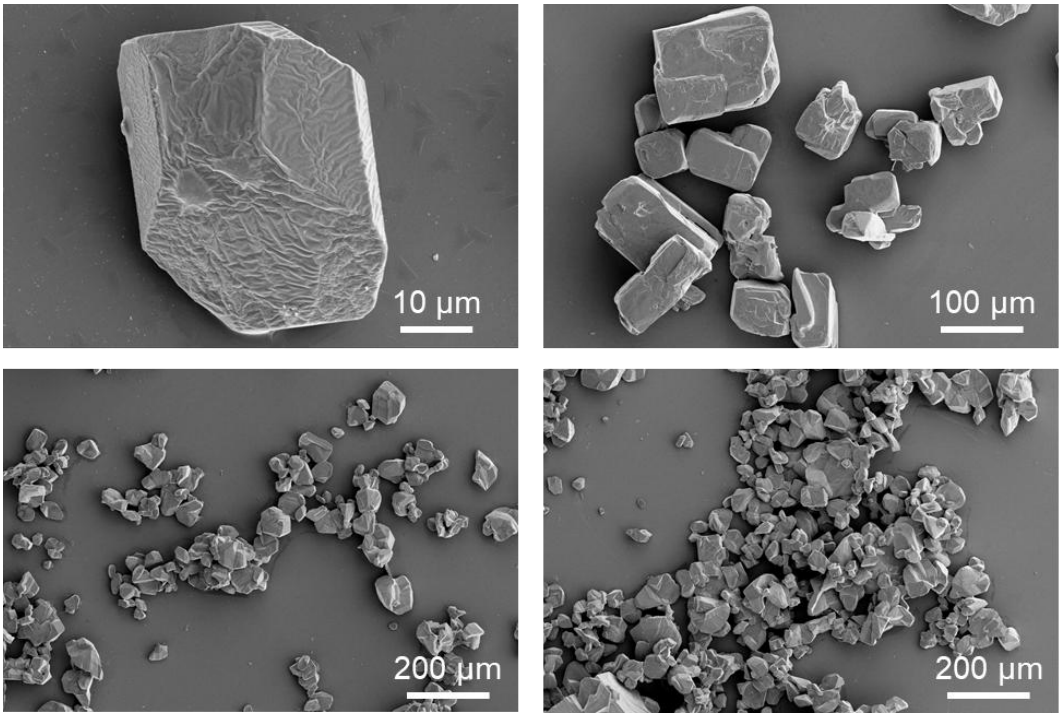

Figure S1. SEM images of **Cu-FA** single crystals.

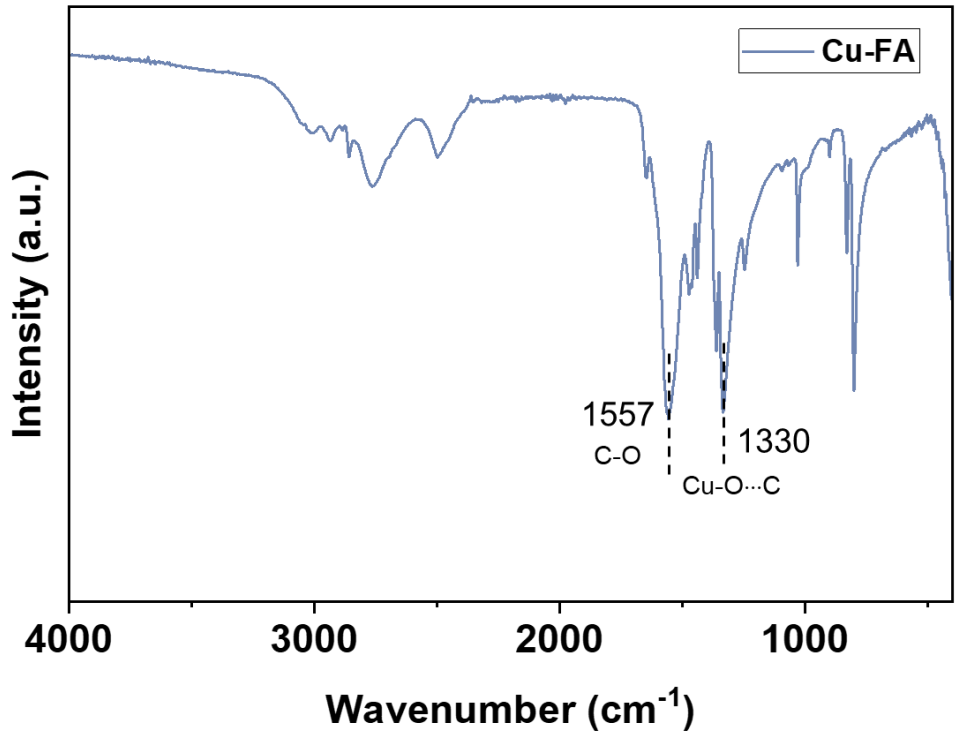

Figure S2. IR spectrum of **Cu-FA**.

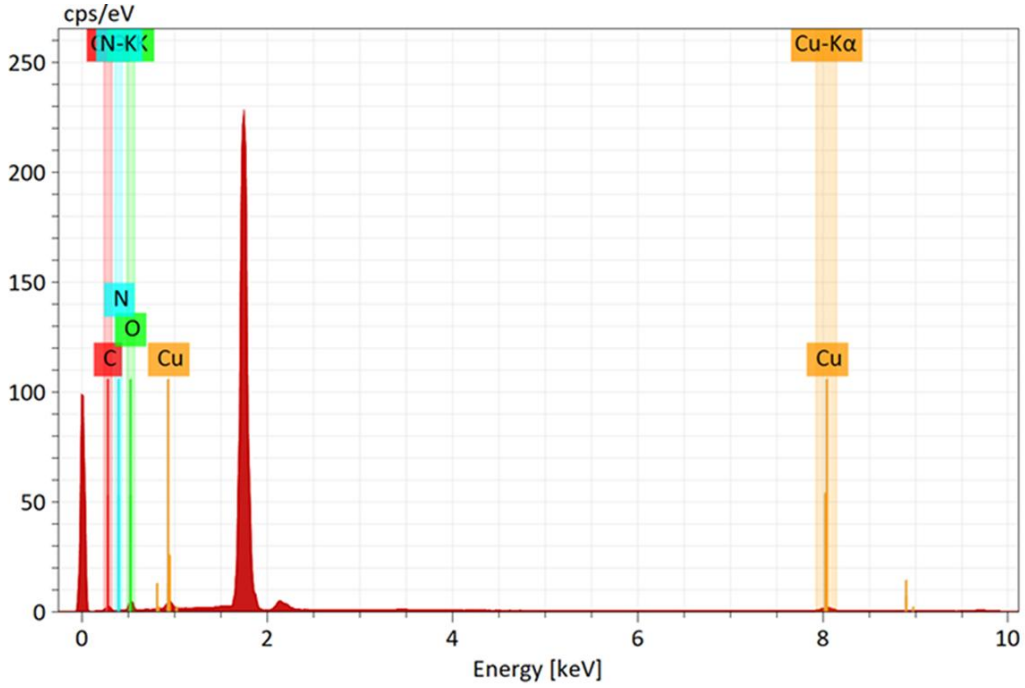

Figure S3. Energy-dispersive X-ray spectroscopy (EDS) analyses of **Cu-FA**.

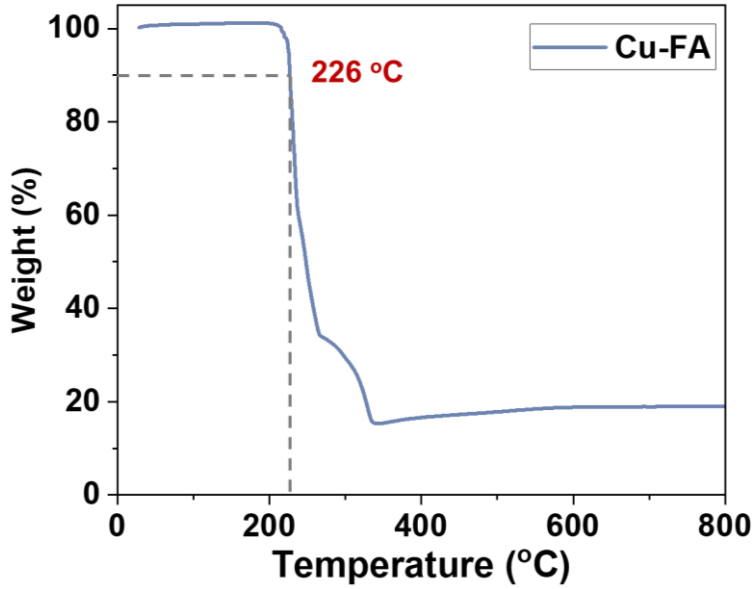

Figure S4. Thermogravimetric analysis of **Cu-FA** crystals. The Thermal decomposition temperature was determined as 226 °C.

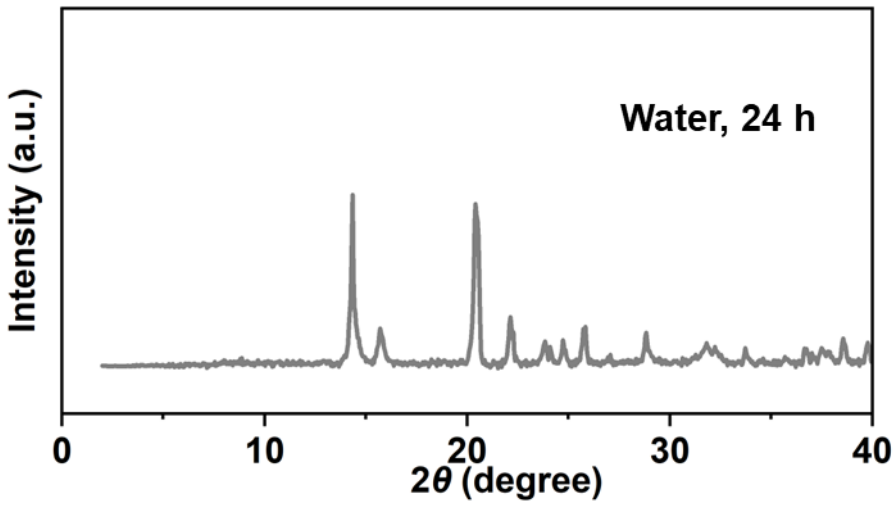

Figure S5. Water stability of **Cu-FA** crystals. Minimal changes in the PXRD pattern of **Cu-FA** after 24 h of water immersion indicate its excellent water stability.

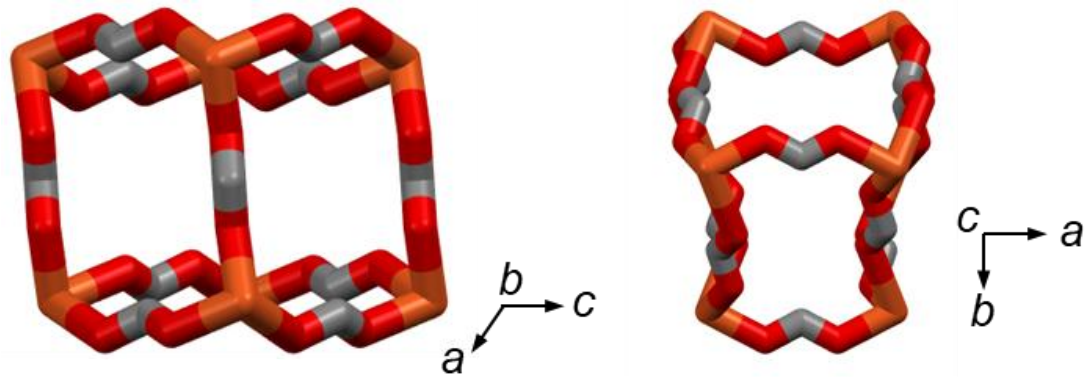

Figure S6. Crystal structure of the basic building block of **Cu-FA**, viewed along *b* and *c* axes.

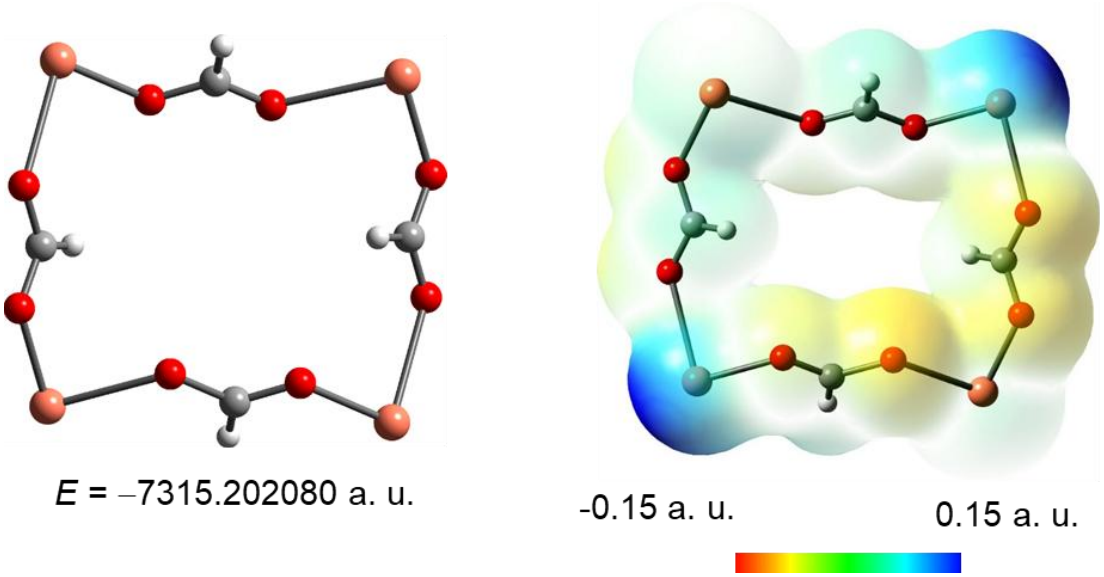

Figure S7. Single-point energy and electrostatic potential of **Cu-FA**.

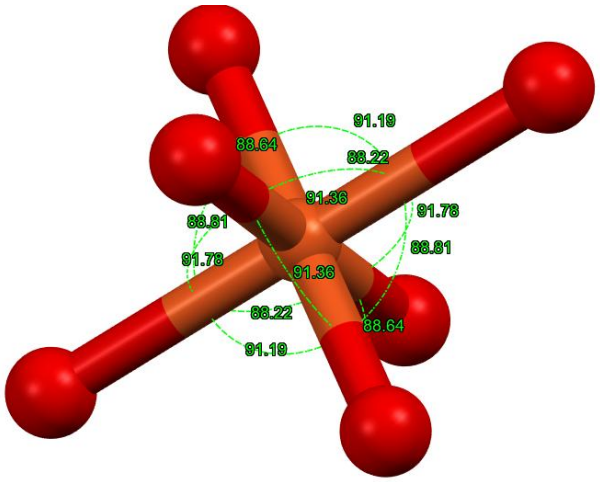

Figure S8. The octahedral geometry in **Cu-FA** with bond angles around 90°.

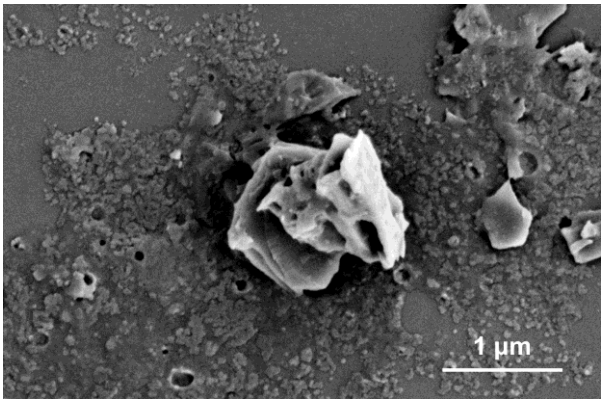

Figure S9. Cu-FA was found decomposed into smaller irregular particles by SEM, with a diameter of 1 μm.

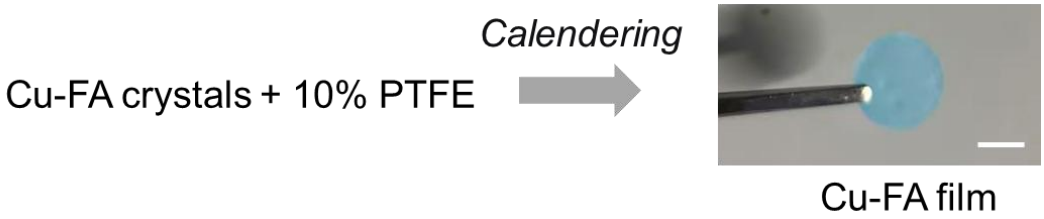

Figure S10. The optical image of **Cu-FA** film.

Section 2. Supplementary Tables

Table S1. Crystal data and structure refinement for **Cu-FA**

Compounds	**Cu-FA**
CCDC	2410570
Empirical formula	$C_3H_3CuO_6$, C_2H_8N
Temperature (K)	310.00
Crystal system	Monoclinic
Space group	*C 2/C*
a (Å)	13.661 (5)
b (Å)	8.738 (4)
c (Å)	8.871 (3)
α (°)	90
β (°)	123.790 (11)
γ (°)	90
Volume (Å^3)	880.1 (6)
Z	4
ρ_{calc} (g cm^{-3})	1.847
Absorption coefficient (mm^{-1})	2.481
F (000)	500.0
F′ (000)	501.54
Radiation (Å)	0.71073
R (reflections)	0.0195 (894)
wR_2 (reflections)	0.0535 (1012)

Table S2. Typical antibacterial performances of reported Cu-MOFs and benchmark systems against *E. coli*

Materials	Antibacterial rate	References
Cu@Ce-MOF	99.55%	*Biomaterials* 2026, **327**, 123771[1]
CS@Cu-MOFs	96.5%	*Adv*. *Healthcare Mater*. 2023, **12**, 2300746[2]
CuS/Co-Fc-MOF	99.56%	*ACS Appl*. *Nano Mater*. 2024, **7**, 10998[3]
Cu-TCPP@MnO_2	95.9%	*Chem*. *Energy J*. 2025, **512**, 162334[4]
Copper MOF@Gel	91.91%	*Bioact*. *Mater*. 2024, **32**, 260.[5]
GOx/CDs@MOF	99.2%	*ACS Appl*. *Mater*. *Interfaces* 2023, **15**, 9110[6]
Commercial BluRibbon®	77.47%	*J. Drug Deliv. Sci. Tec*. 2019, **51**, 662[7]
Cu-FA	**99.76**	**This work**

Section 3. Supplementary References

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