Electronic Supplementary Information

New Metastable Interfacial Syntheses of a Silver-terephthalate Metal Organic Framework: Structure, Morphology and Antibacterial activities

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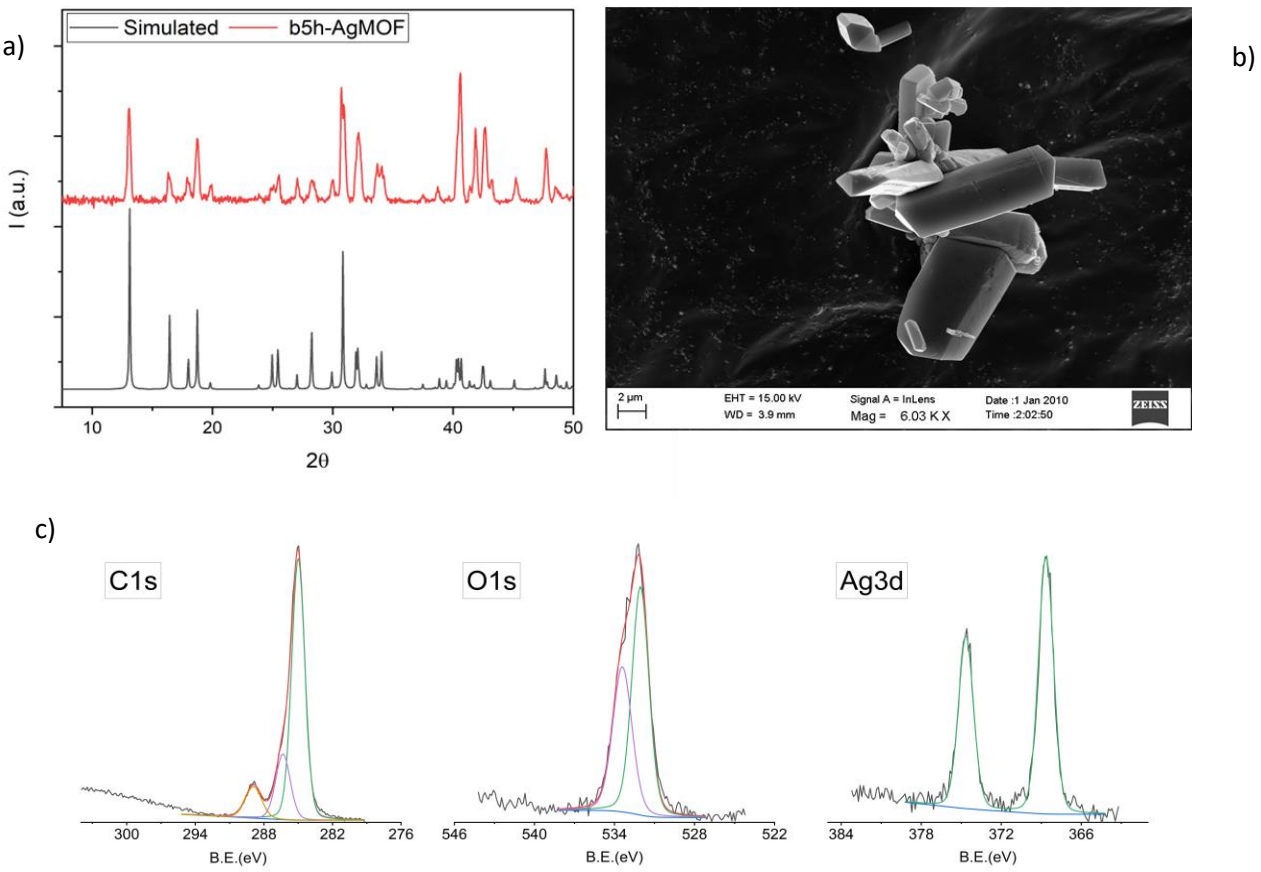

Figure S 1: a) XRD pattern of AgMOF simulated curve and route b5h-AgMOF, b) SEM picture of high crystalline of route a 5h AgMOF, c)XPS analysis of b5h-AgMOF confirm the formation of carboxylate groups thank to the C and O 1s peaks and the presence of silver ions thank to the Ag3d peak.

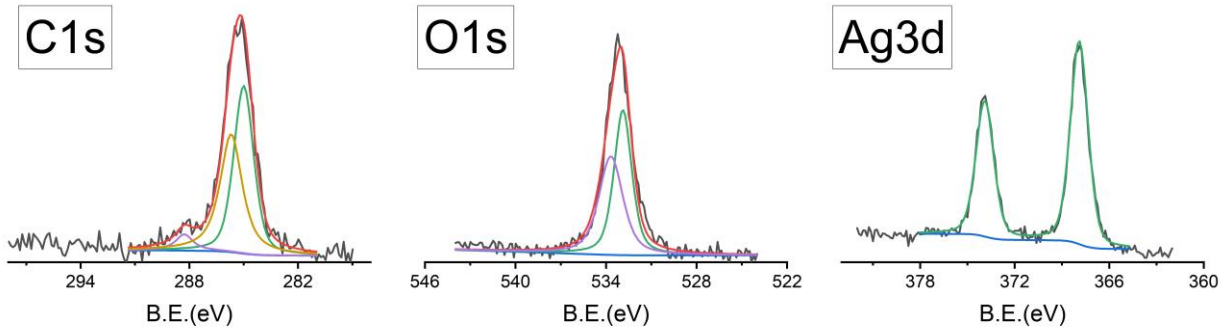

Figure S 2: XPS analysis of b-AgMOF. C1s and O1s peaks confirms the formation of carboxylate groups and the Ag3d peak the presence of silver ions in the crystalline structure.

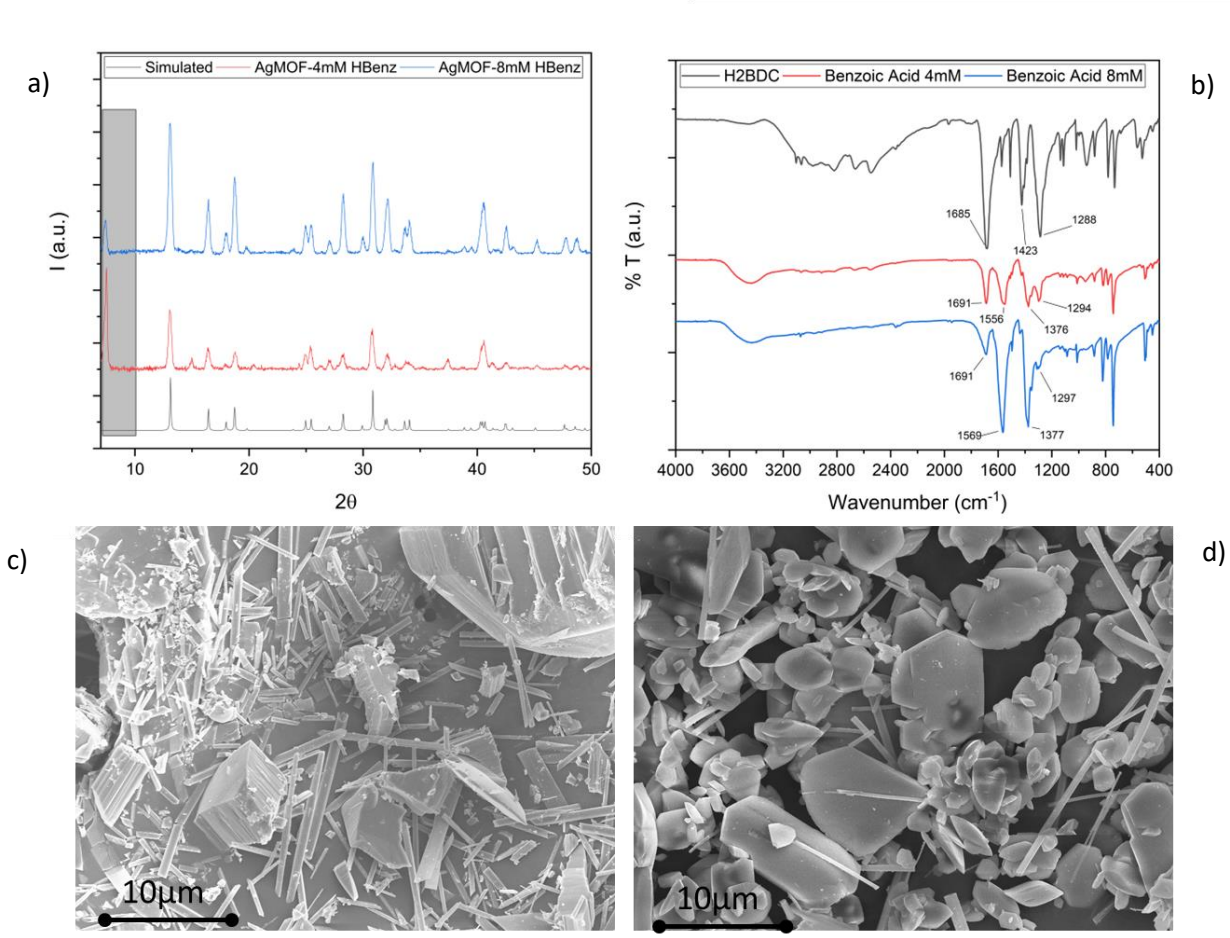

Figure S 3: a) XRD patterns comparison of simulated AgMOF, 4mM and 8mM Benzoic acid modulated c-AgMOF; b) IR comparison between terephthalic acid, 4mM and 8mM Benzoic acid modulated c-AgMOF; c) SEM picture of 4mM Benzoic acid modulated c-AgMOF; d) SEM picture of 8mM Benzoic acid modulated c-AgMOF.

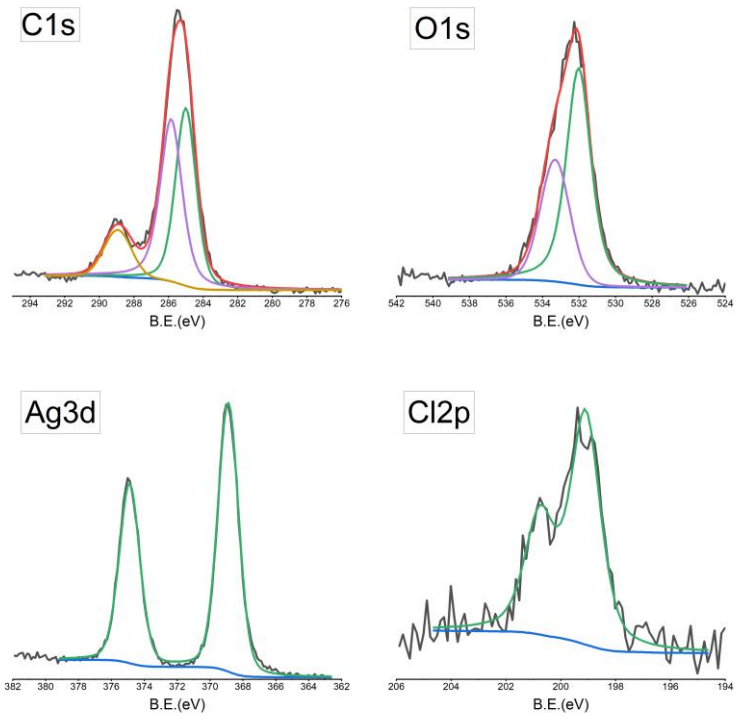

Figure S 4: XPS analysis of the c(KCl)-AgMOF. C1s and O1s peaks confirms the formation of carboxylate groups and the Ag3d peak the presence of silver ions in the crystalline structure. In this case the observed Cl 2p signal and its Binding Energy value suggest that residual Cl- ions are present.

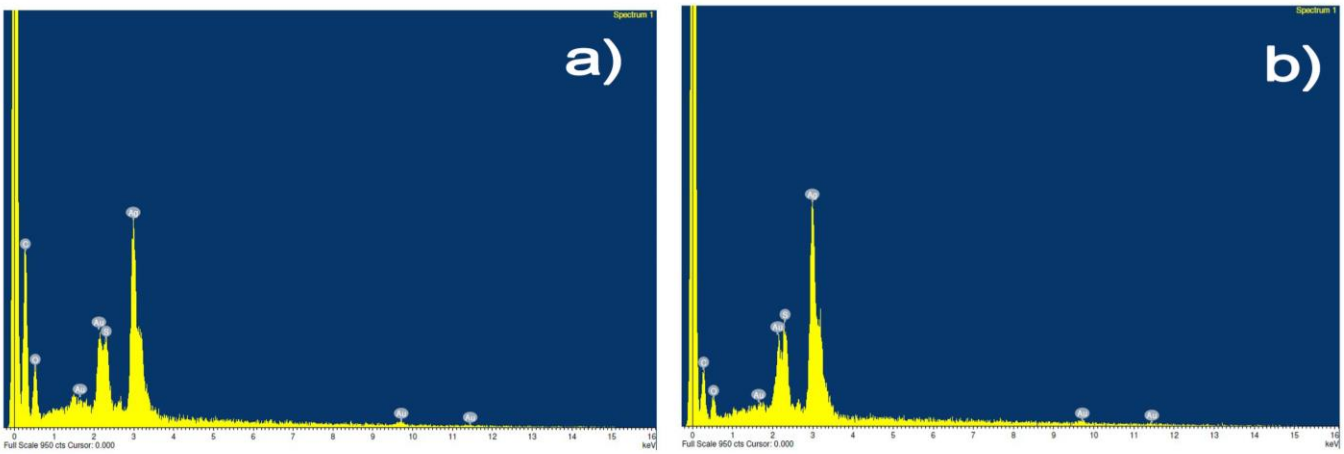

Figure S 5: EDX analysis of b-AgMOF before (a) and after (b) 24 h incubation in the cultural medium.

As reported in Table S1, EDX characterization shows a decrease in the carbon content present in the material, an increase in the silver rate, while the oxygen content remains stable. This is attributed to the material's slow degradation in solution, in which the organic binder and silver ions are released. Silver can precipitate as oxides in the culture medium, explaining the constant oxygen rate in the material. Additionally, the presence of sulphur is observed, likely due to minor contaminations of DMSO.

b-AgMOF (atomic %)	C	O	Ag	S
Dry	70,1	17,3	9,6	3
24h	54,7	18,8	19,7	6,8

Table S 1: EDX atomic percentual obtained by the b-AgMOF as dry and after 24h of incubation period in culture medium before the inoculation of bacterial strains.

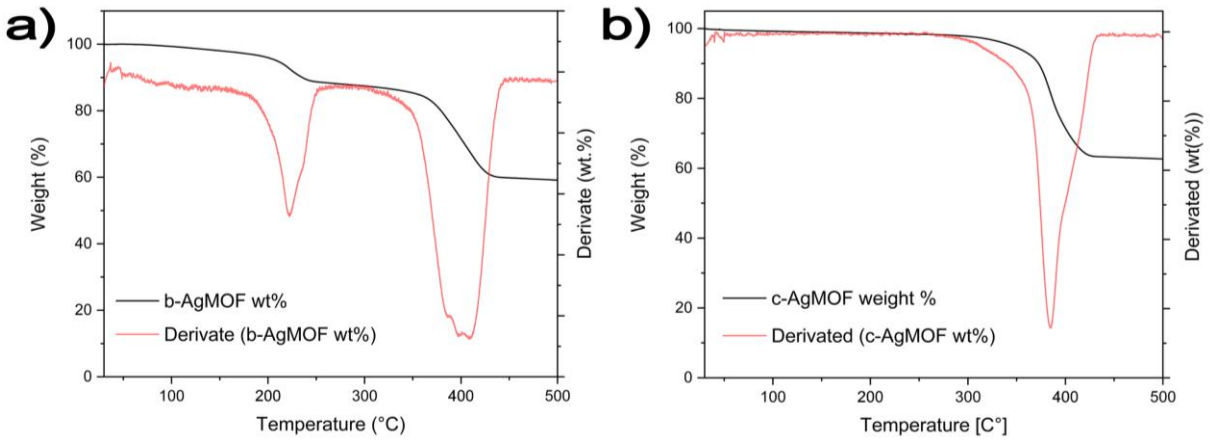

Figure S 6: a) b-AgMOF TGA analysis in black and derivate curve in red. b) c-AgMOF TGA analysis in black and derivate curve in red.