

15301	BaO
26961	BaO
68217	Ba ₂ CuO ₃
65801	BaCuO ₂
202998	Ba _{0.98} CuO _{2.07}
69757	CuO
67860	YBa ₂ Cu _{2.78} O ₇
32707	Y ₂ BaCuO ₅
65550	Y _{0.5} Ba ₃ Cu _{1.5} O _{5.5}

Table S1. ICSD numbers (left) with the corresponding crystal phases (right)

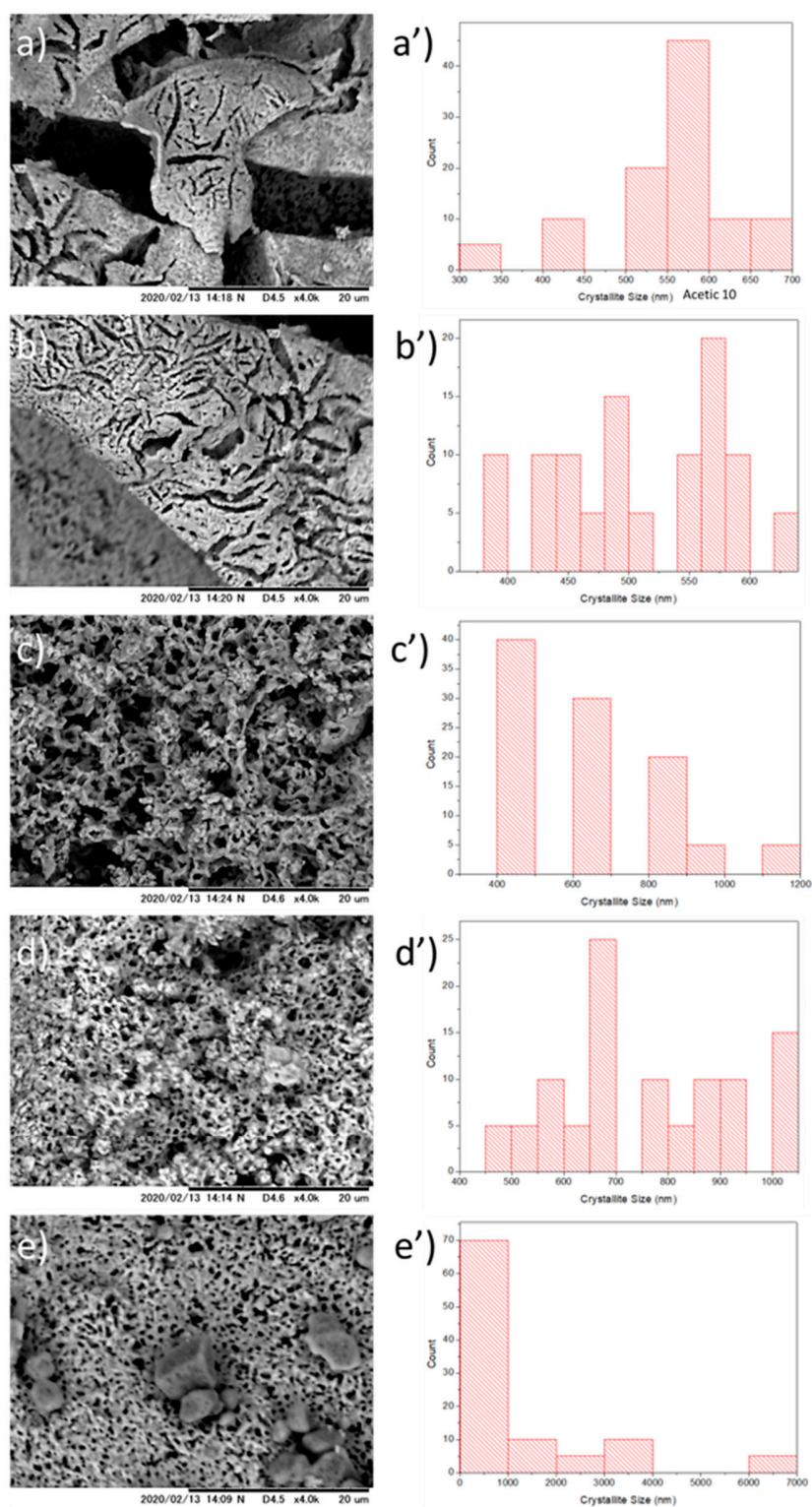


Figure S1. a-e) SEM micrographs showing the morphology exhibited by the crystallites, synthesized using choline hydroxide 1:1 acetic acid and molar ratios of DES (X):1 YBaCu metal nitrates molar ratios use in the reaction, with X values $20 \leq X \leq 60$, and X values increasing in tens. a'-e') Histograms showing crystallite size distributions of their respective SEM micrographs.

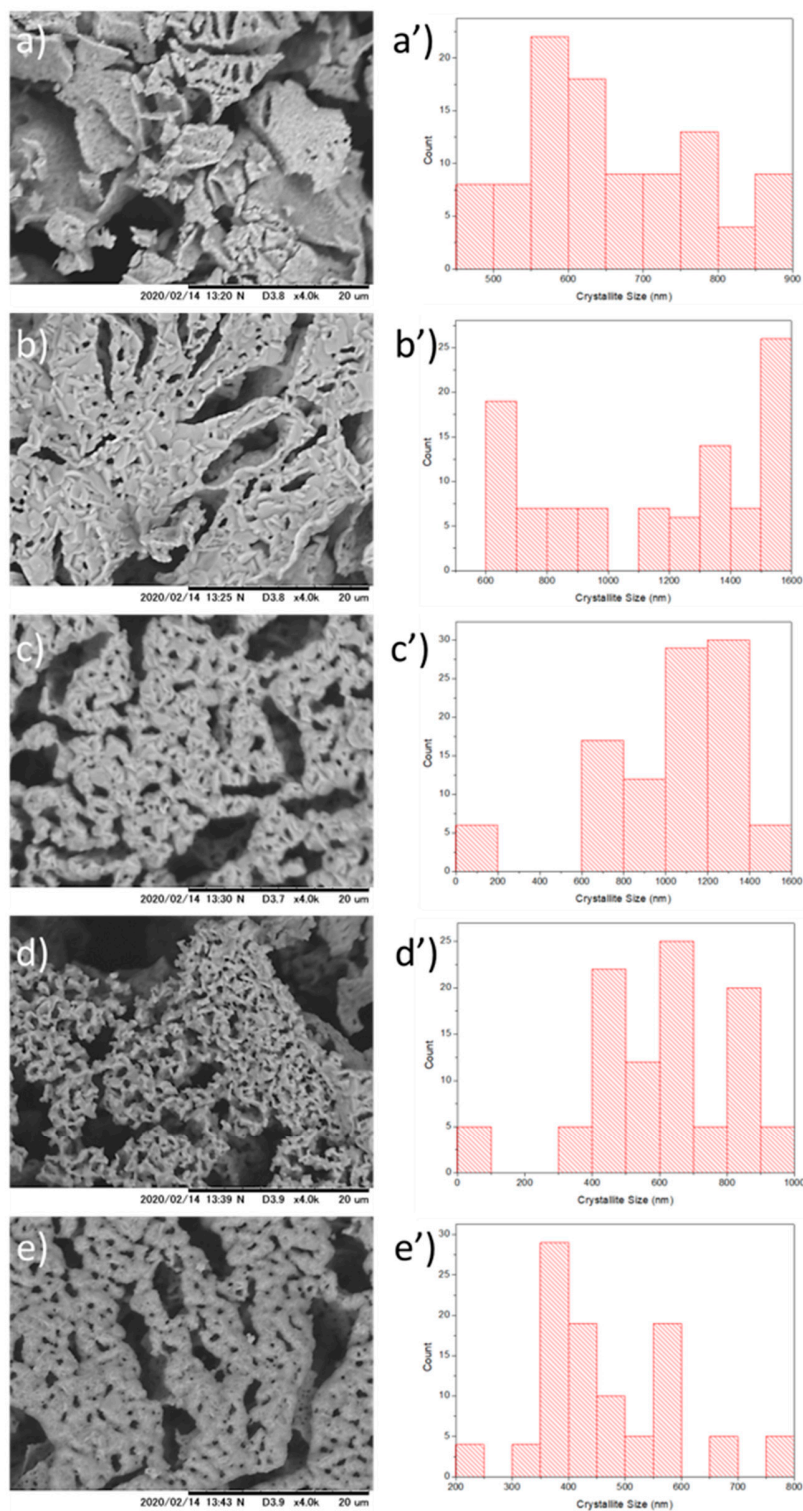


Figure S2. a-e) SEM micrographs showing the morphology exhibited by the crystallites, synthesized using choline hydroxide 1:1 propionic acid and molar ratios of DES (X):1 YBaCu metal nitrates molar ratios use in the reaction, with X values $20 \leq X \leq 60$, and X values increasing in tens. a'-e') Histograms showing crystallite size distributions of their respective SEM micrographs.

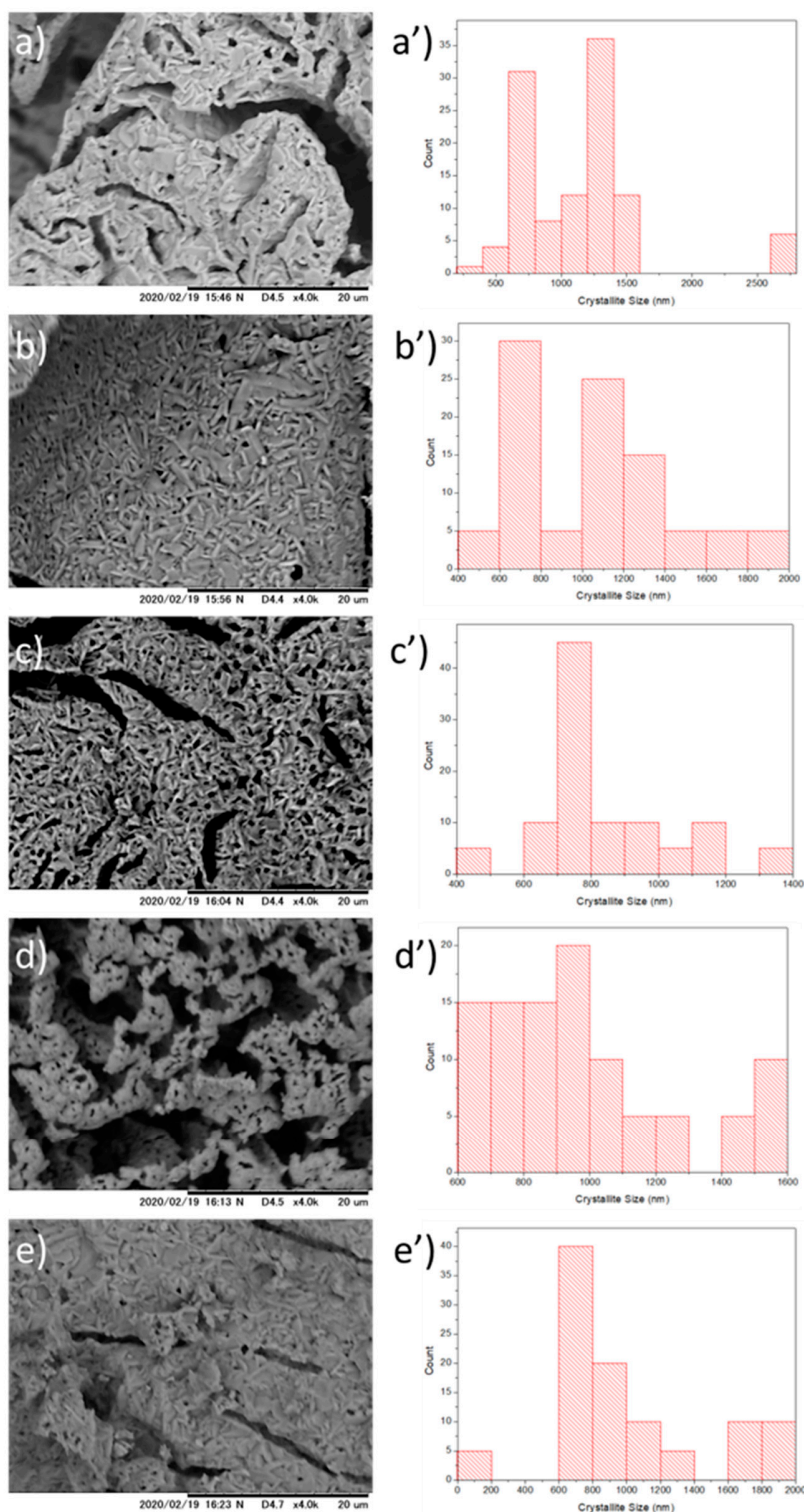


Figure S3. a-e) SEM micrographs showing the morphology exhibited by the crystallites, synthesized using choline hydroxide 1:1 butyric acid and molar ratios of DES (X):1 YBaCu metal nitrates molar ratios use in the reaction, with X values $20 \leq X \leq 60$, and X values increasing in tens. a'-e') Histograms showing crystallite size distributions of their respective SEM micrographs.

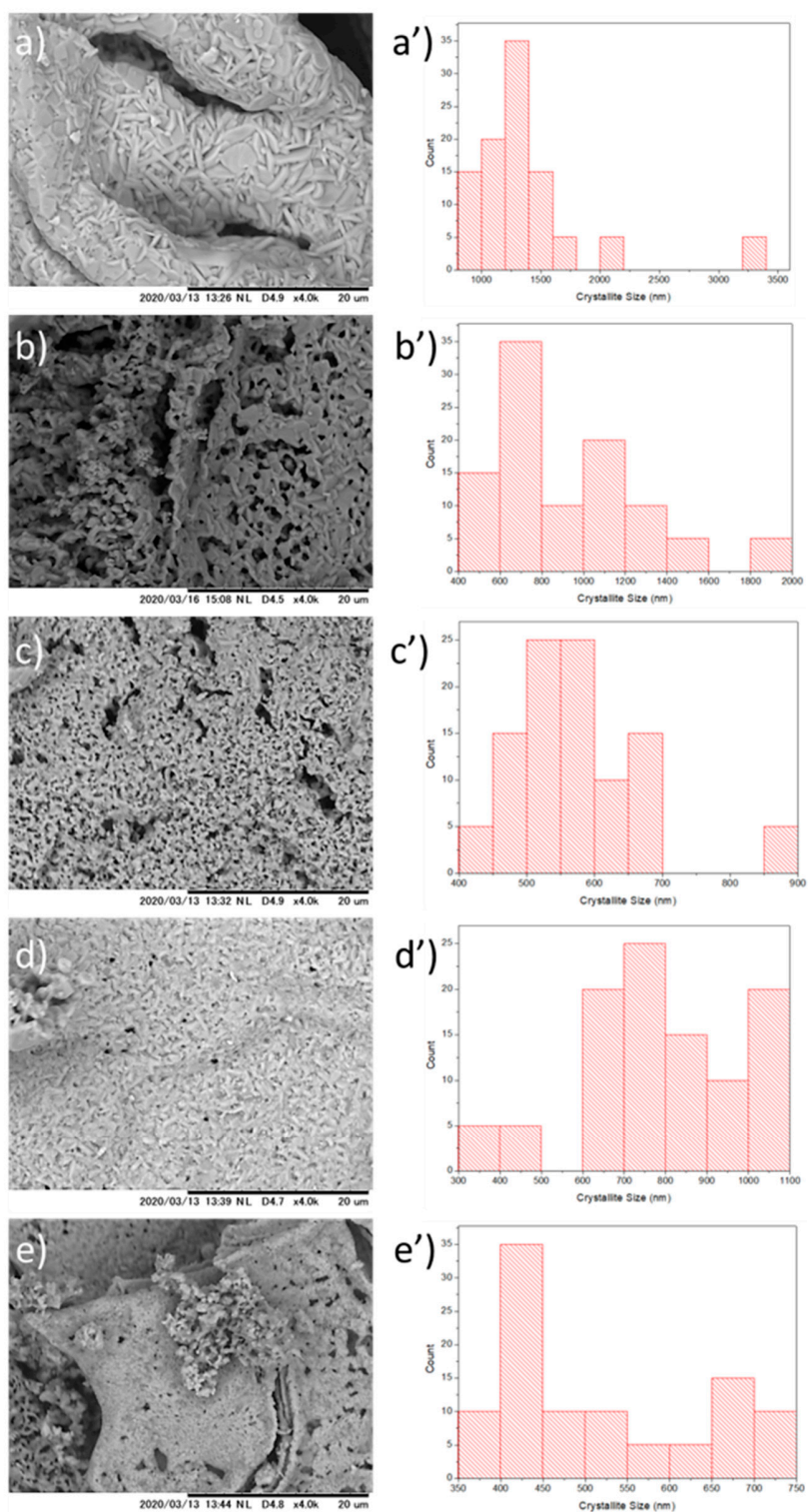


Figure S4. a-e) SEM micrographs showing the morphology exhibited by the crystallites, synthesized using choline hydroxide 1:1 valeric acid and molar ratios of DES (X):1 YBaCu metal nitrates molar ratios use in the reaction, with X values $20 \leq X \leq 60$, and X values increasing in tens. a'-e') Histograms showing crystallite size distributions of their respective SEM micrographs.

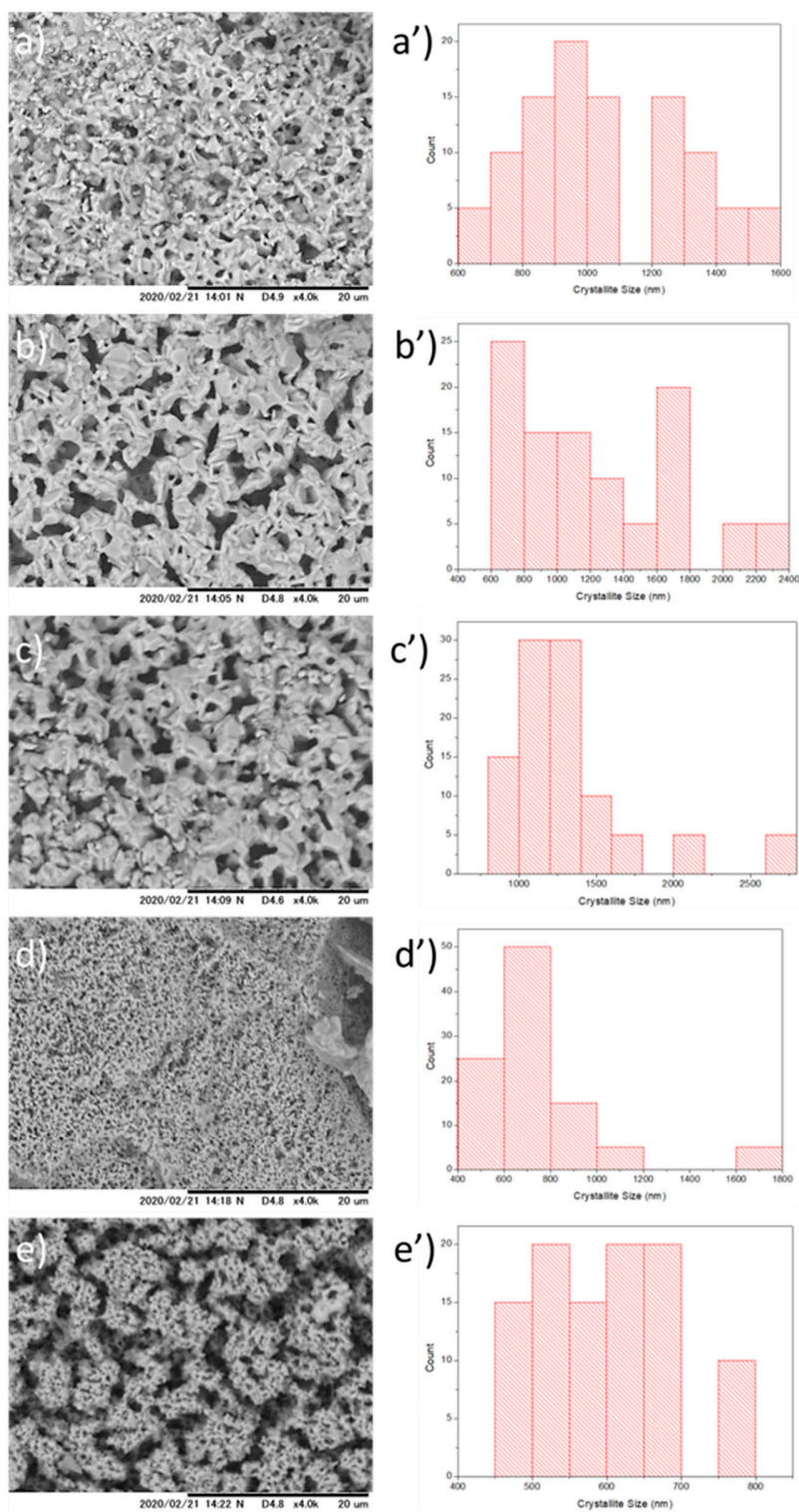


Figure S5. a-e) SEM micrographs showing the morphology exhibited by the crystallites, synthesized using choline hydroxide 1:1 nonanoic acid and molar ratios of DES (X):1 YBaCu metal nitrates molar ratios use in the reaction, with X values $20 \leq X \leq 60$, and X values increasing in tens. a'-e') Histograms showing crystallite size distributions of their respective SEM micrographs.

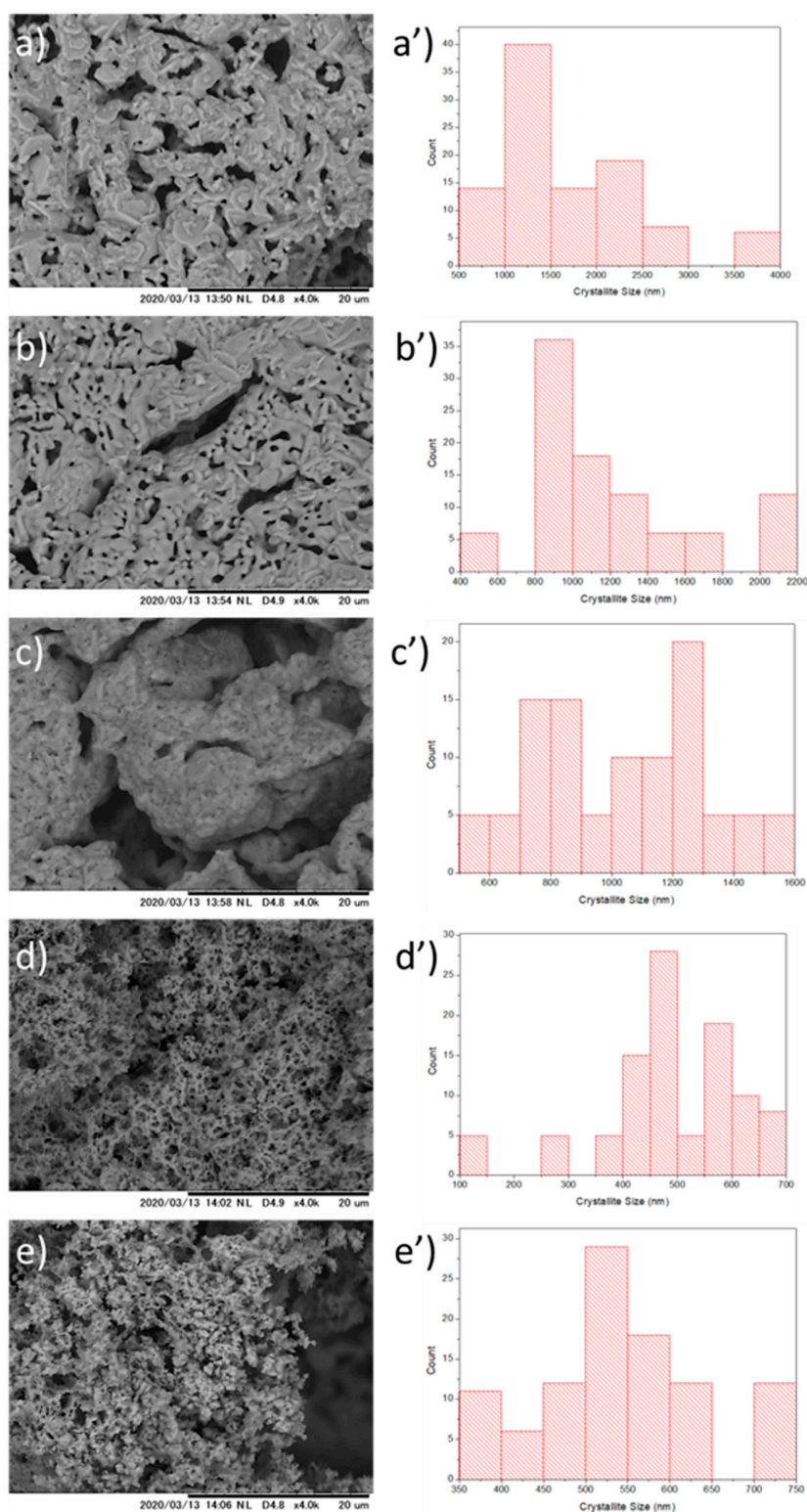


Figure S6. a-e) SEM micrographs showing the morphology exhibited by the crystallites, synthesized using choline hydroxide 1:1 decanoic acid and molar ratios of DES (X):1 YBaCu metal nitrates molar ratios use in the reaction, with X values $20 \leq X \leq 60$, and X values increasing in tens. a'-e') Histograms showing crystallite size distributions of their respective SEM micrographs.

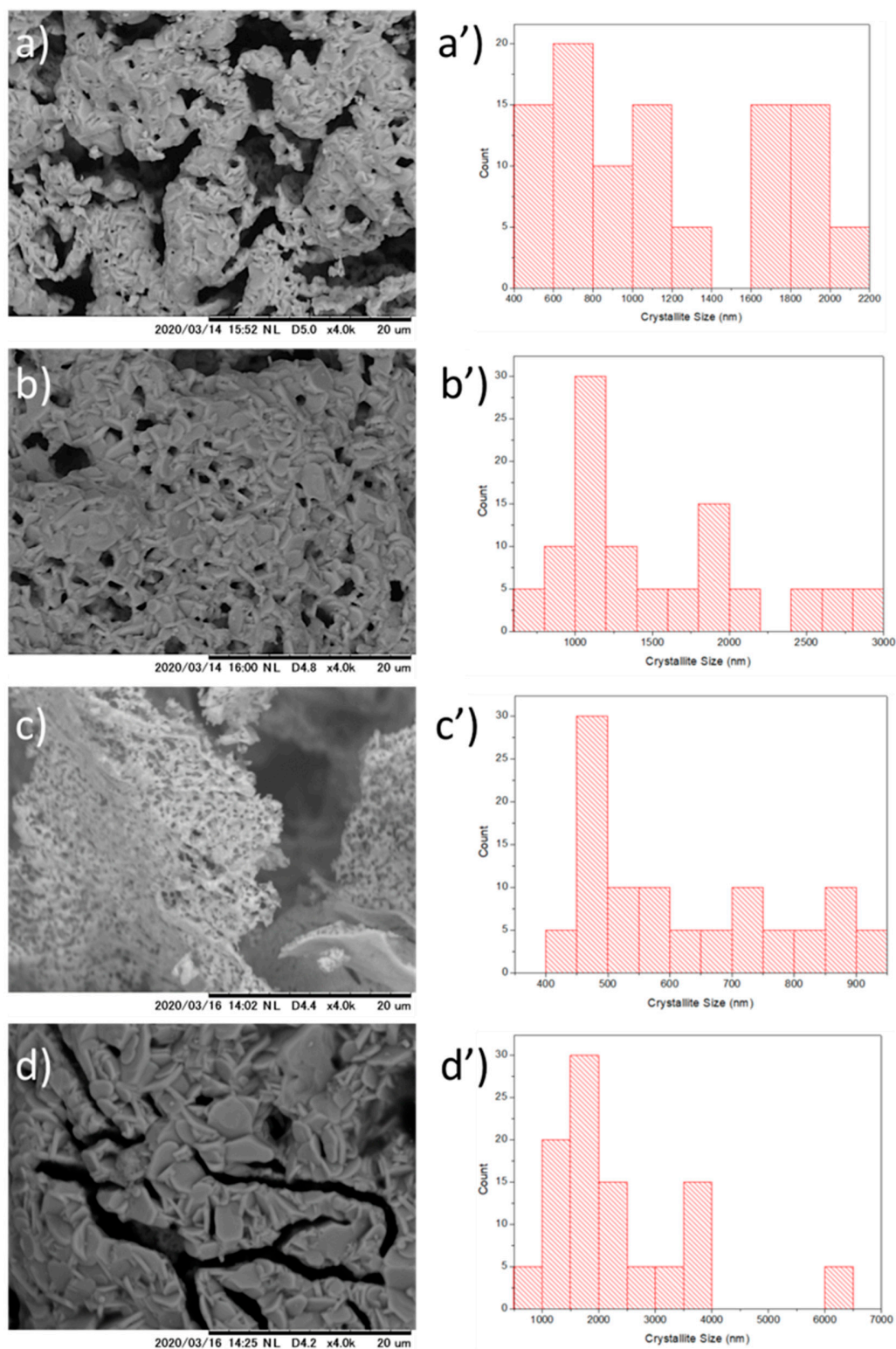


Figure S7. a-e) SEM micrographs showing the morphology exhibited by the crystallites, synthesized using choline hydroxide 1:1 acetic acid and molar ratio of DES 60:1 YBaCu metal nitrates, with dehydrating temperatures of a) 150 °C, b) 180 °C, c) 250 °C, and d) 300 °C. a'-d') Histograms showing crystallite size distributions of their respective SEM micrographs.

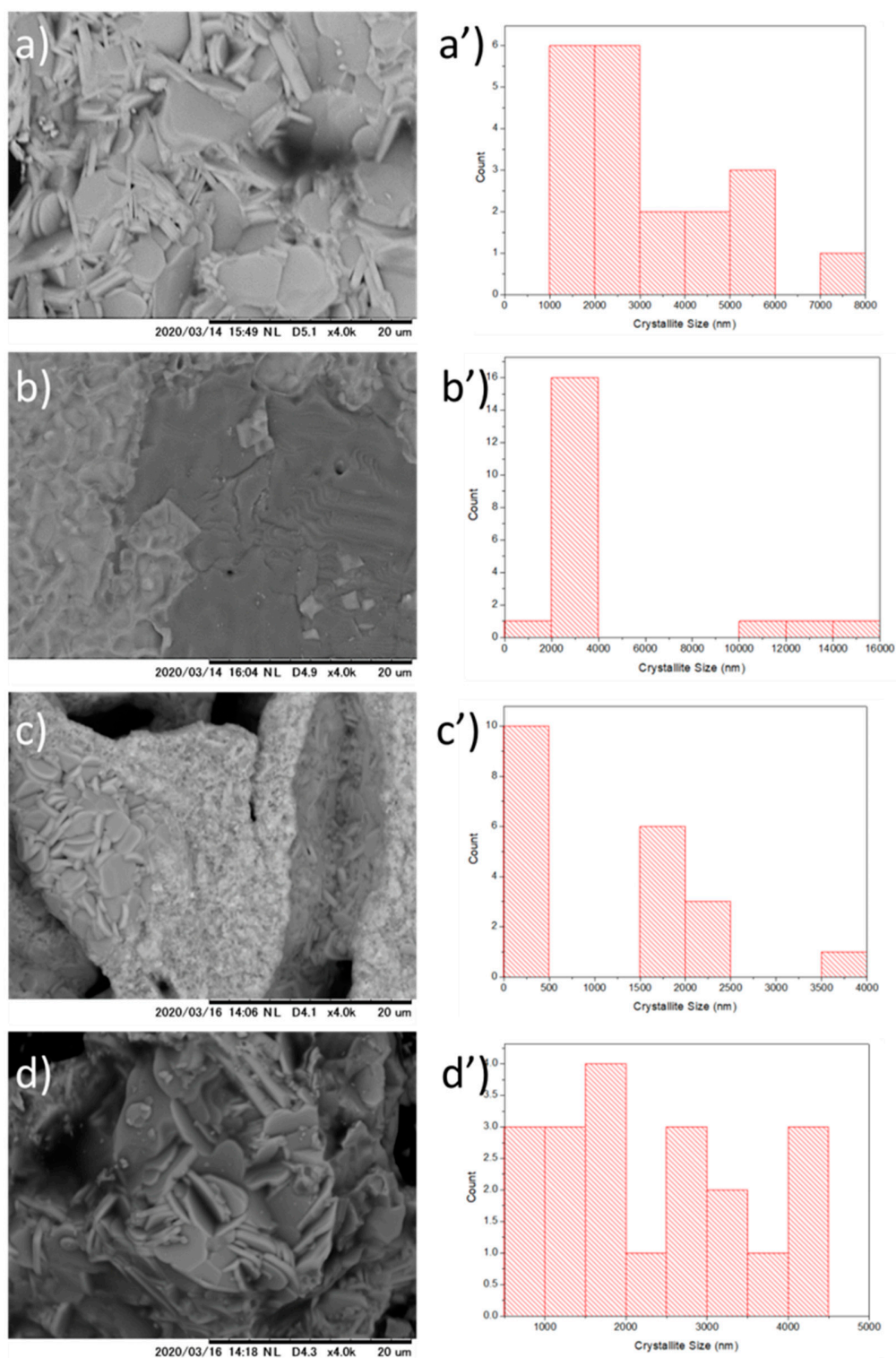


Figure S8. a-e) SEM micrographs showing the morphology exhibited by the crystallites, synthesized using choline hydroxide 1:1 valeric acid and molar ratio of DES 30:1 YBaCu metal nitrates, with dehydrating temperatures of a) 150 °C, b) 180 °C, c) 250 °C, and d) 300 °C. a'-d') Histograms showing crystallite size distributions of their respective SEM micrographs.

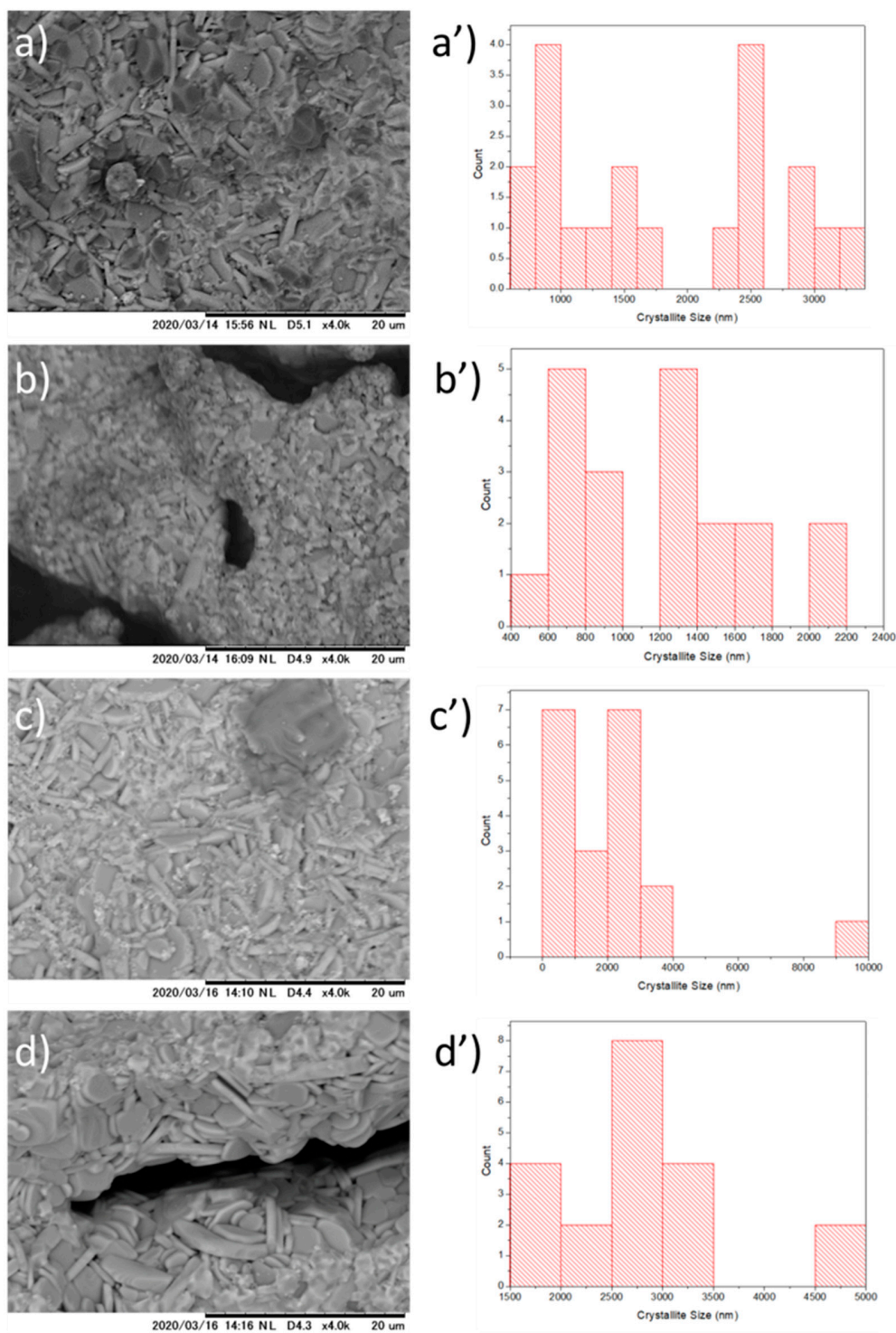


Figure S9. a-e) SEM micrographs showing the morphology exhibited by the crystallites, synthesized using choline hydroxide 1:1 nonanoic acid and molar ratio of DES 20:1 YBaCu metal nitrates, with dehydrating temperatures of a) 150 °C, b) 180 °C, c) 250 °C, and d) 300 °C. a'-d') Histograms showing crystallite size distributions of their respective SEM micrographs.

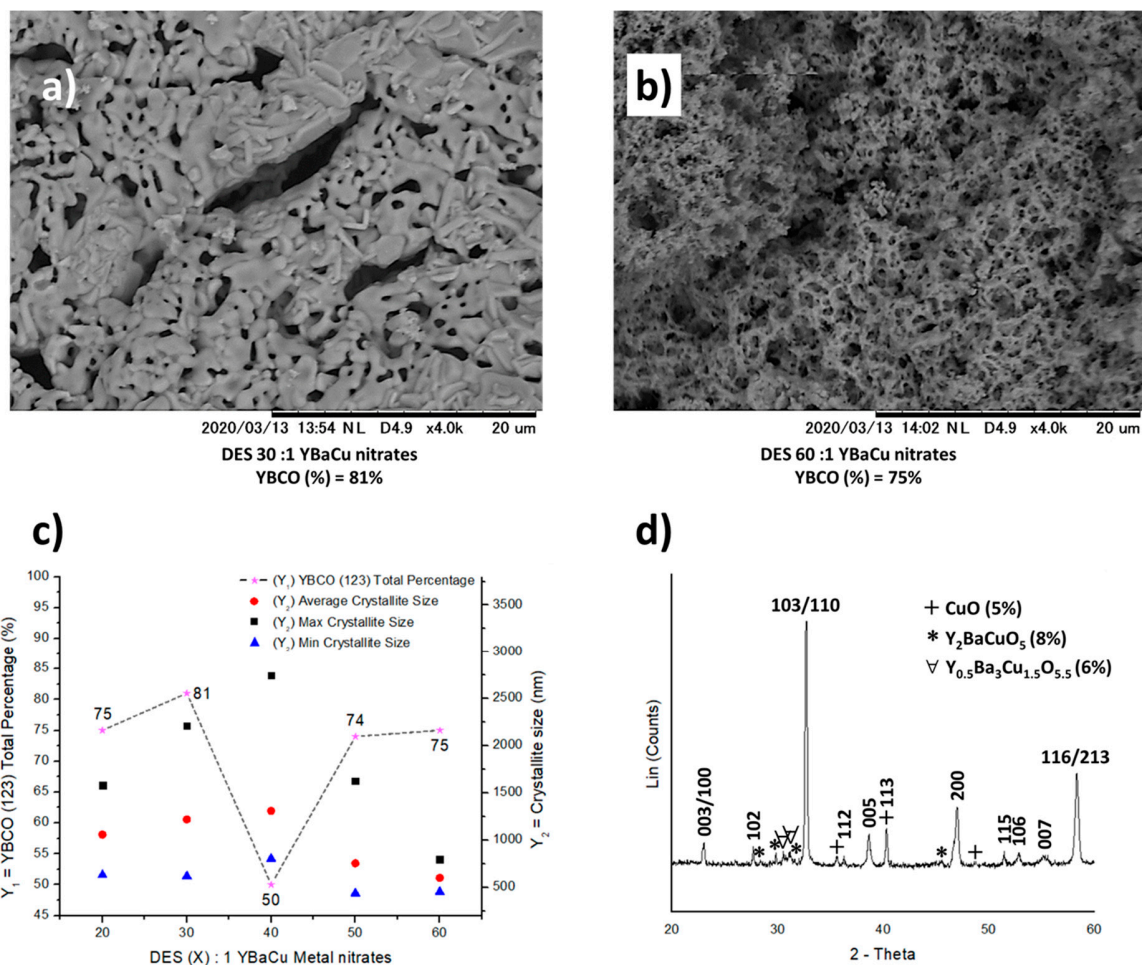


Figure S10. a & b) SEM micrographs showing the morphology exhibited by the crystallites, synthesized using choline hydroxide 1:1 decanoic acid and molar ratios of a) DES 30:1 YBaCu metal nitrates, and b) DES 60:1 YBaCu metal nitrates. c) graphical representation of the total phase percentage of YBCO (123), and crystallite sizes per DES (X):1 YBaCu metal nitrates molar ratios use in the reaction, with X values $20 \leq X \leq 60$. d) indexed power diffraction pattern of the synthesis of YBCO (123) via DES 30:1 YBaCu metal nitrates.

Acetic acid - Total Phase Percentages (%)					
X =	20	30	40	50	60
YBa₂Cu₃O_{7-d}	82	86	86	88	92
CuO	6	3	3	5	5
Y₂BaCuO₅	8	2	7	0	3
Y_{0.5}Ba₃Cu_{1.5}O_{5.5}	4	9	4	7	0
Total	100	100	100	100	100

Table S2 Summary of Total phase percentages obtained via Rietveld analysis of the powder diffraction patterns, collected from samples synthesized via choline hydroxide 1:1 acetic acid, DES (X):1 YBaCu metal nitrates molar ratios.

Propionic acid - Total Phase Percentages (%)					
X =	20	30	40	50	60
YBa₂Cu₃O_{7-d}	91	90	87	88	89
CuO	4	5	7	4	5
Y₂BaCuO₅	5	5	6	3	3
Y_{0.5}Ba₃Cu_{1.5}O_{5.5}	0	0	0	5	3
Total	100	100	100	100	100

Table S3 Summary of Total phase percentages obtained via Rietveld analysis of the powder diffraction patterns, collected from samples synthesized via choline hydroxide 1:1 propionic acid, DES (X):1 YBaCu metal nitrates molar ratios.

Butyric acid - Total Phase Percentages (%)					
X =	20	30	40	50	60
YBa₂Cu₃O_{7-d}	91	92	91	93	92
CuO	3	4	4	4	5
Y₂BaCuO₅	6	4	5	2	2
Y_{0.5}Ba₃Cu_{1.5}O_{5.5}	0	0	0	1	1
Total	100	100	100	100	100

Table S4 Summary of Total phase percentages obtained via Rietveld analysis of the powder diffraction patterns, collected from samples synthesized via choline hydroxide 1:1 butyric acid, DES (X):1 YBaCu metal nitrates molar ratios.

Valeric acid - Total Phase Percentages (%)					
X =	20	30	40	50	60
YBa₂Cu₃O_{7-d}	89	88	88	88	82
CuO	3	4	6	8	7
Y₂BaCuO₅	5	8	0	0	3
Y_{0.5}Ba₃Cu_{1.5}O_{5.5}	3	0	6	4	8
Total	100	100	100	100	100

Table S5 Summary of Total phase percentages obtained via Rietveld analysis of the powder diffraction patterns, collected from samples synthesized via choline hydroxide 1:1 valeric acid, DES (X):1 YBaCu metal nitrates molar ratios.

Nonanoic acid - Total Phase Percentages (%)					
X =	20	30	40	50	60
YBa₂Cu₃O_{7-d}	87	89	89	86	81
CuO	5	3	5	6	8
Y₂BaCuO₅	7	5	6	8	7
Y_{0.5}Ba₃Cu_{1.5}O_{5.5}	1	3	0	0	4
Total	100	100	100	100	100

Table S6 Summary of Total phase percentages obtained via Rietveld analysis of the powder diffraction patterns, collected from samples synthesized via choline hydroxide 1:1 nonanoic acid, DES (X):1 YBaCu metal nitrates molar ratios.

Decanoic acid - Total Phase Percentages (%)					
X =	20	30	40	50	60
YBa₂Cu₃O_{7-d}	75	81	50	74	75
CuO	8	6	0	7	10
Y₂BaCuO₅	9	5	14	9	9
Y_{0.5}Ba₃Cu_{1.5}O_{5.5}	8	8	11	10	6
Ba_{0.98}CuO_{2.07}	0	0	25	0	0
Total	100	100	100	100	100

Table S7 Summary of Total phase percentages obtained via Rietveld analysis of the powder diffraction patterns, collected from samples synthesized via choline hydroxide 1:1 decanoic acid, DES (X):1 YBaCu metal nitrates molar ratios.