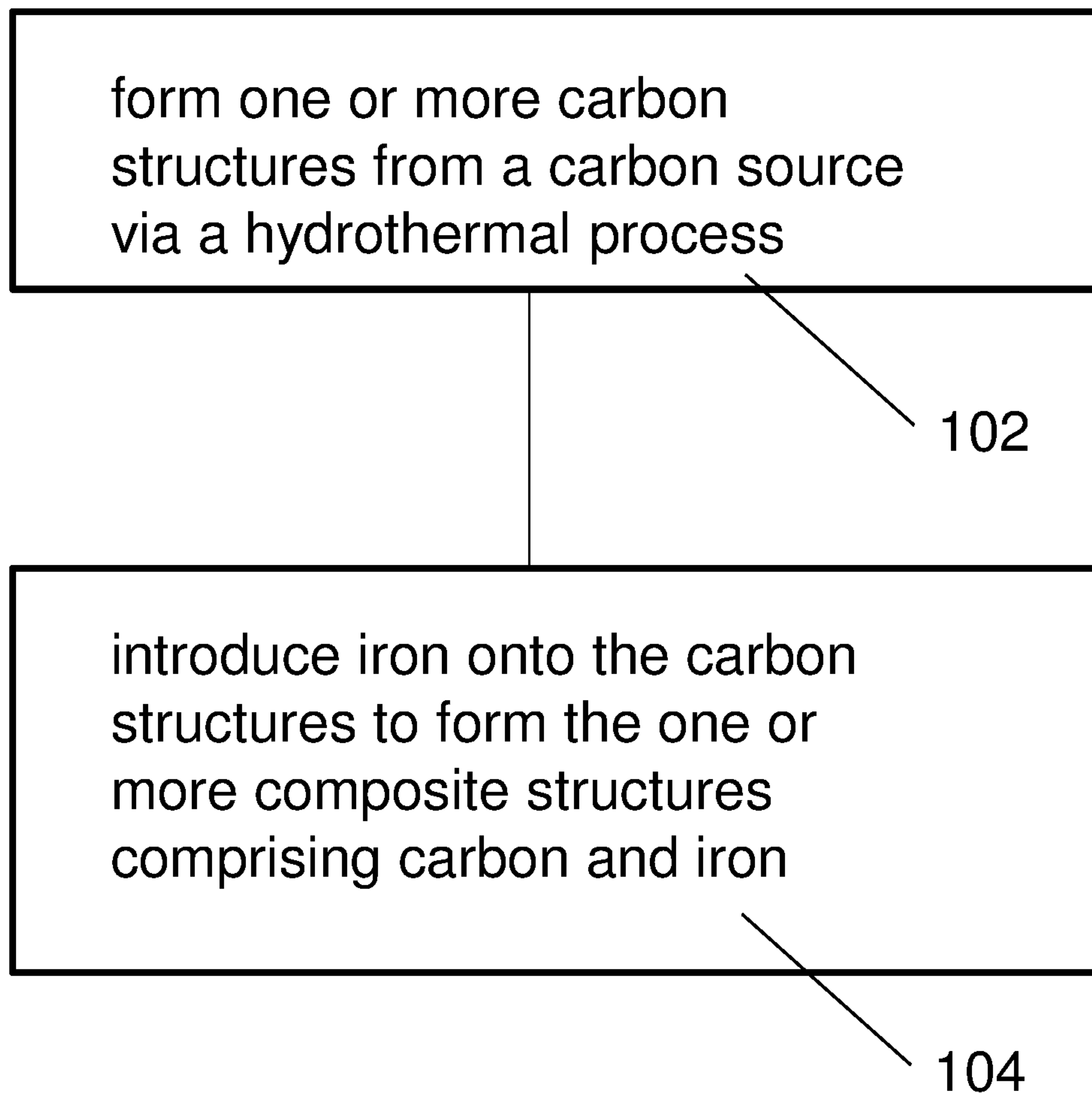
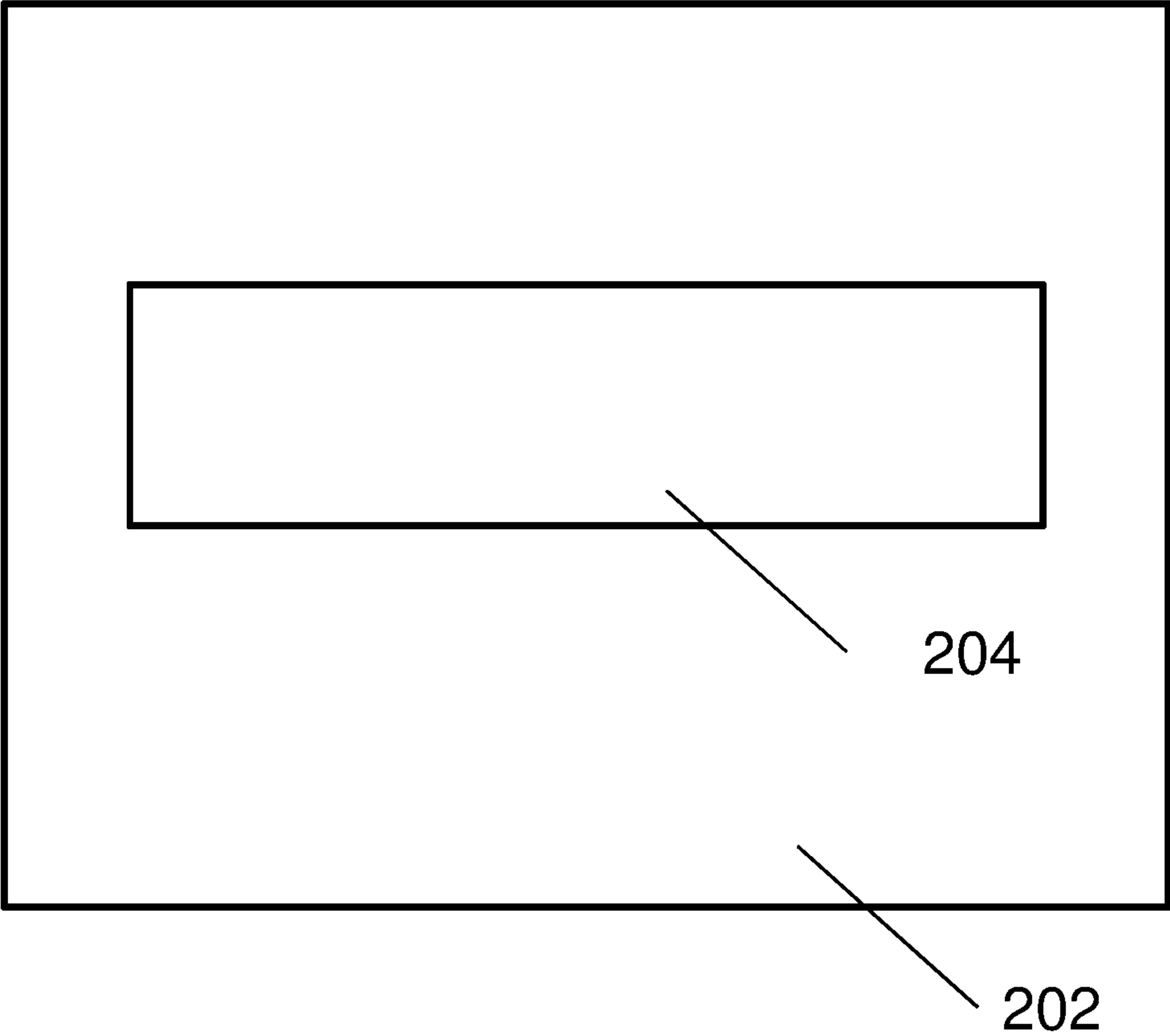


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FIG. 1

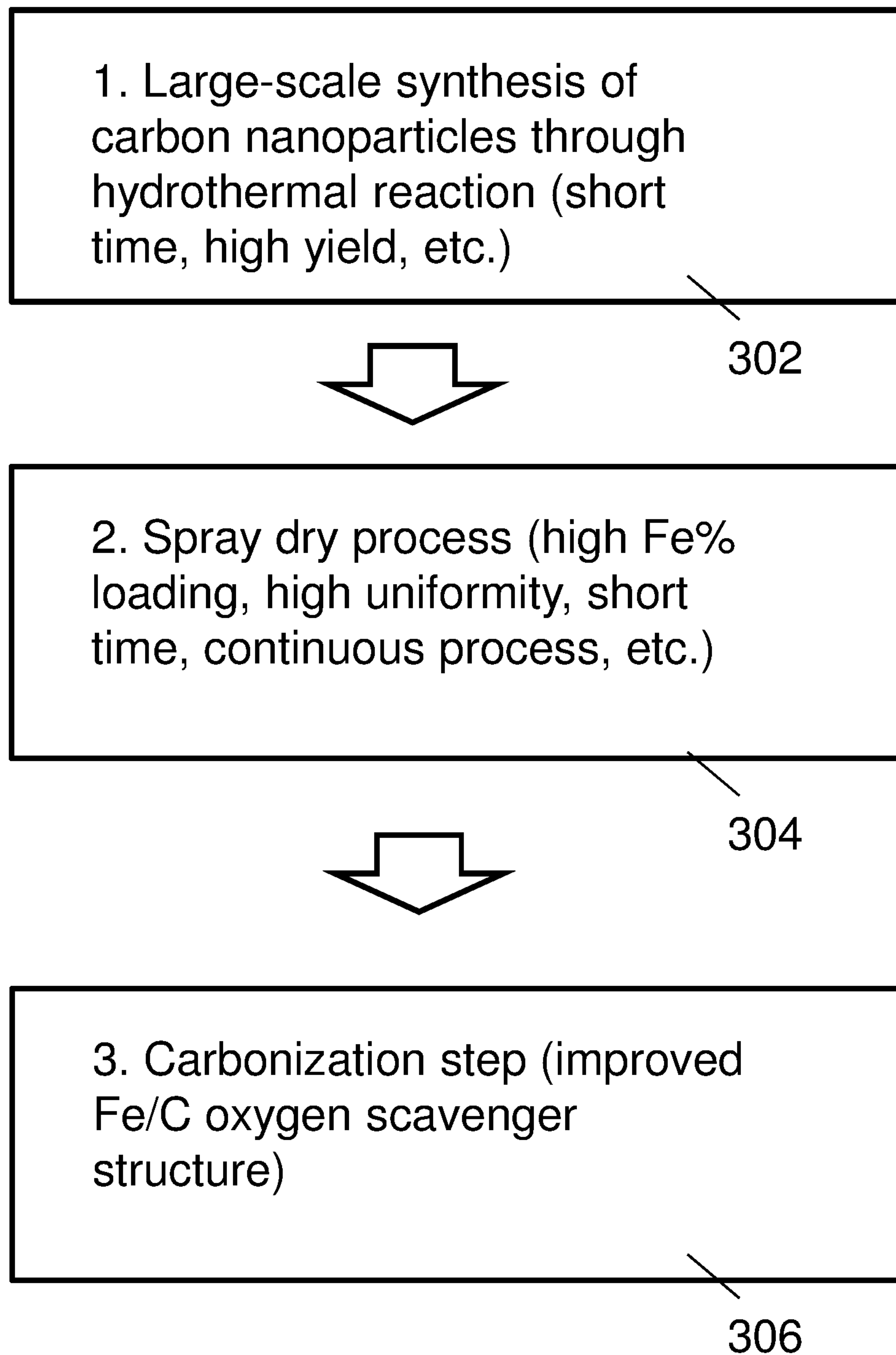
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FIG. 2

200



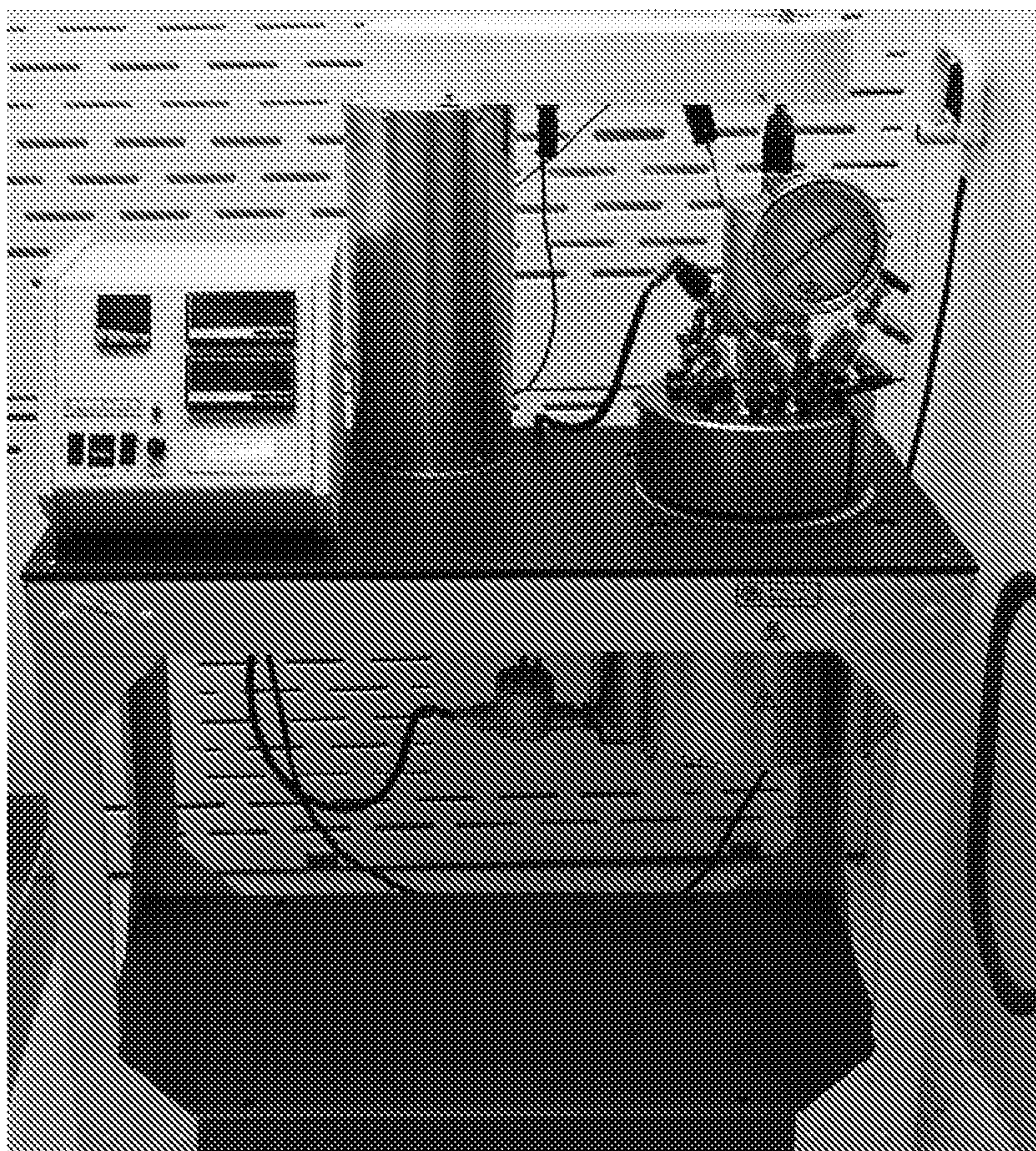
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FIG. 3A



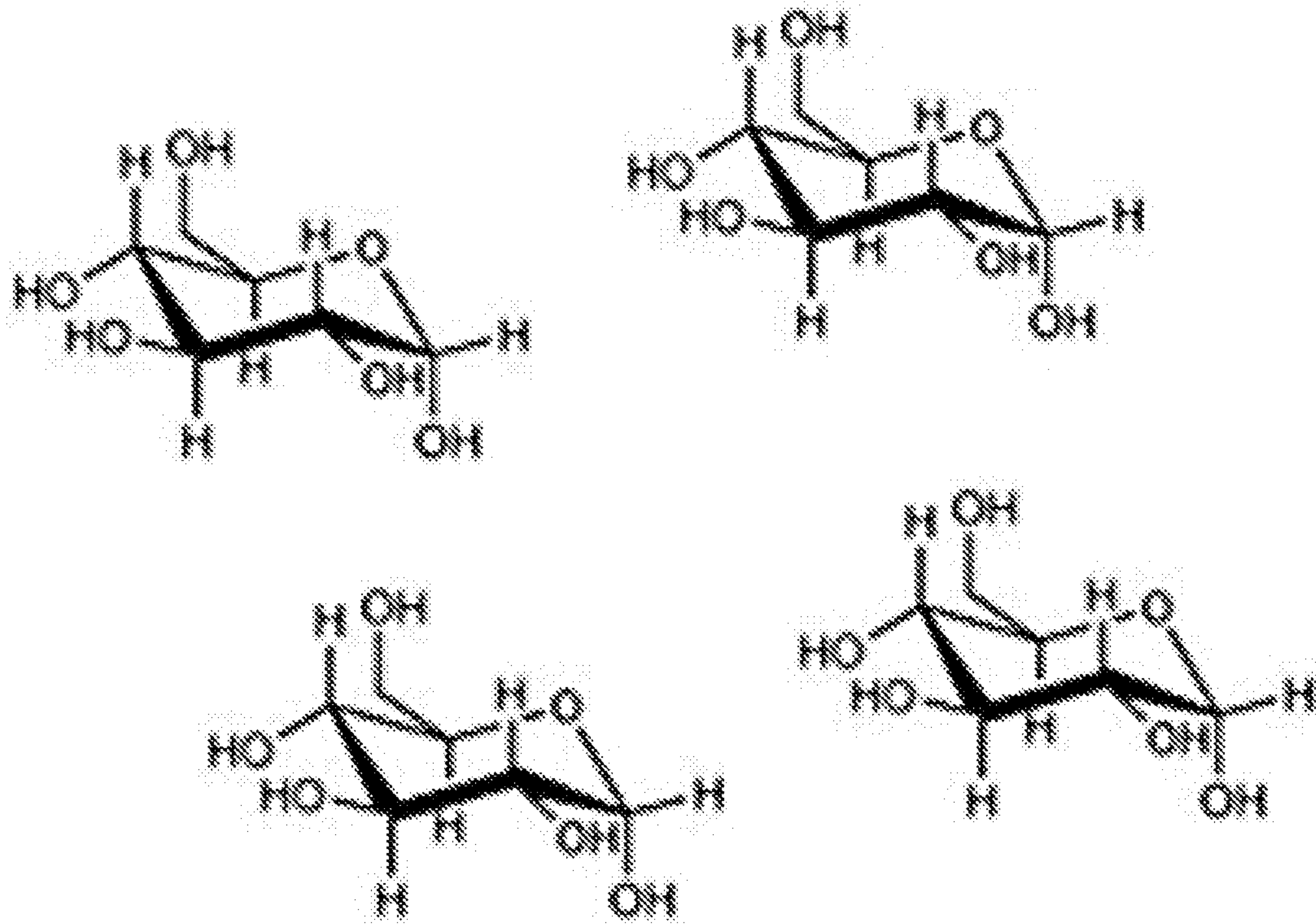
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FIG. 3B



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FIG. 4A



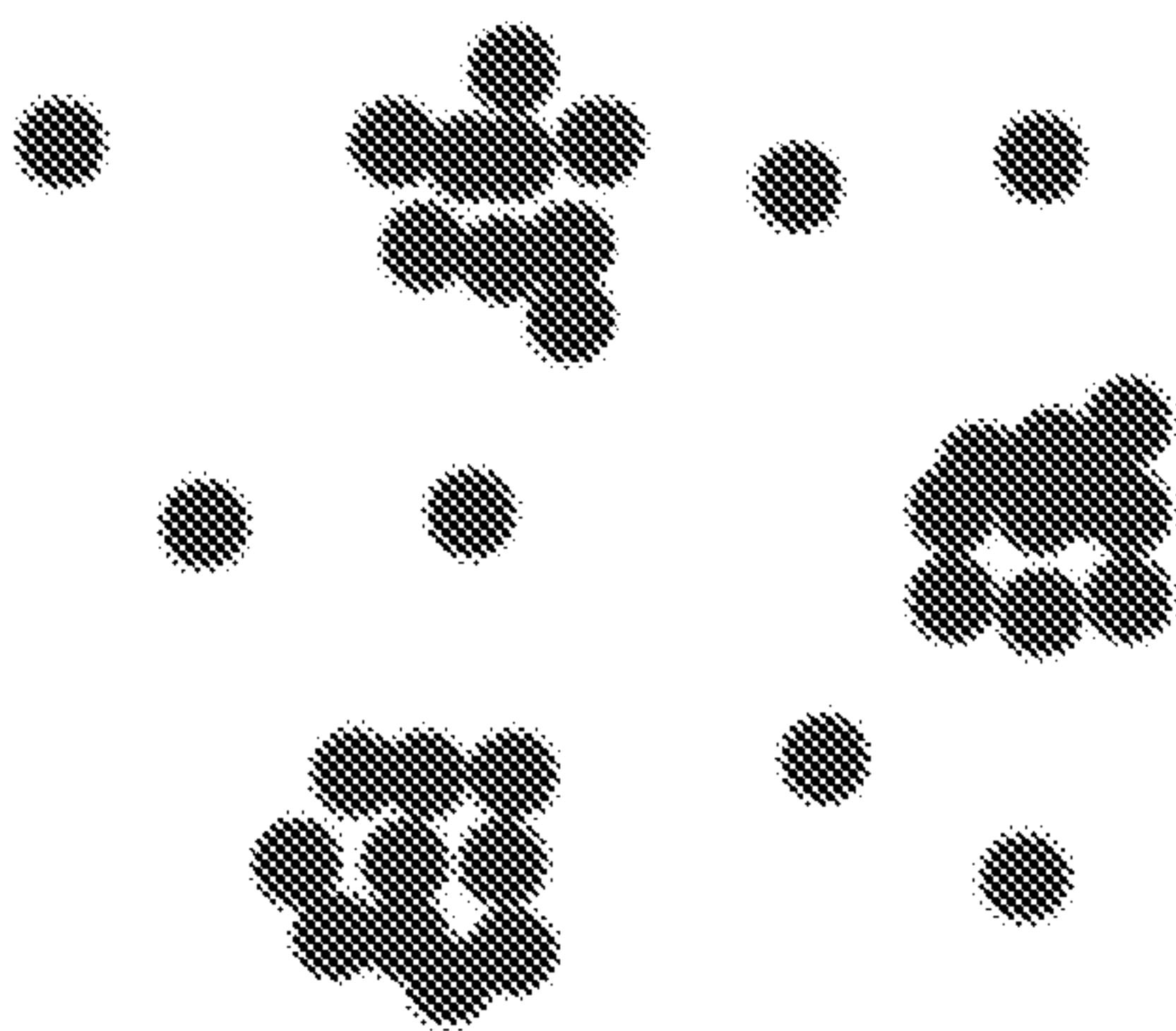
**Glucose In high
pressure reactor**

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FIG. 4B

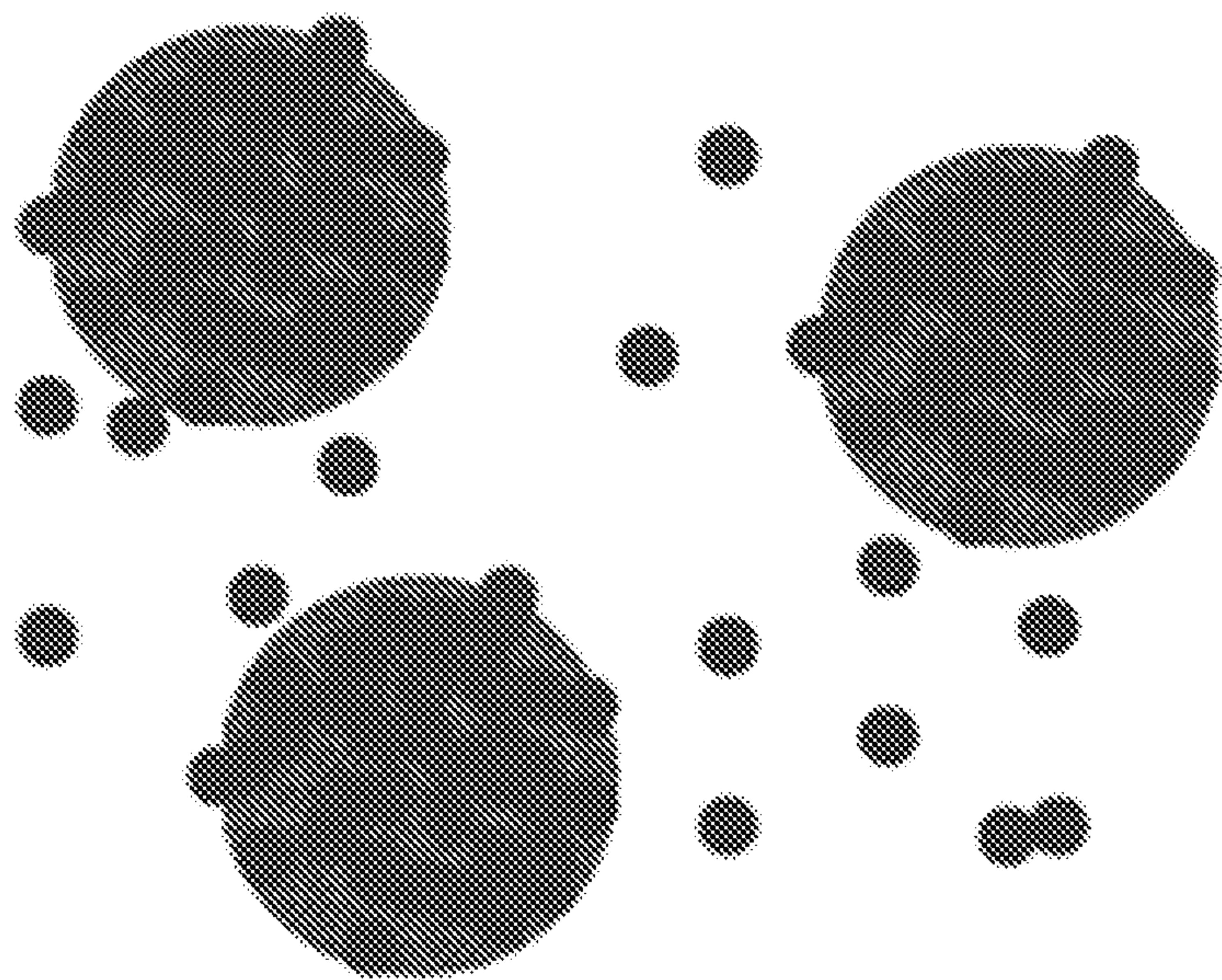


FIG. 4C



Formation of C particles

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FIG. 4D



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FIG. 4E

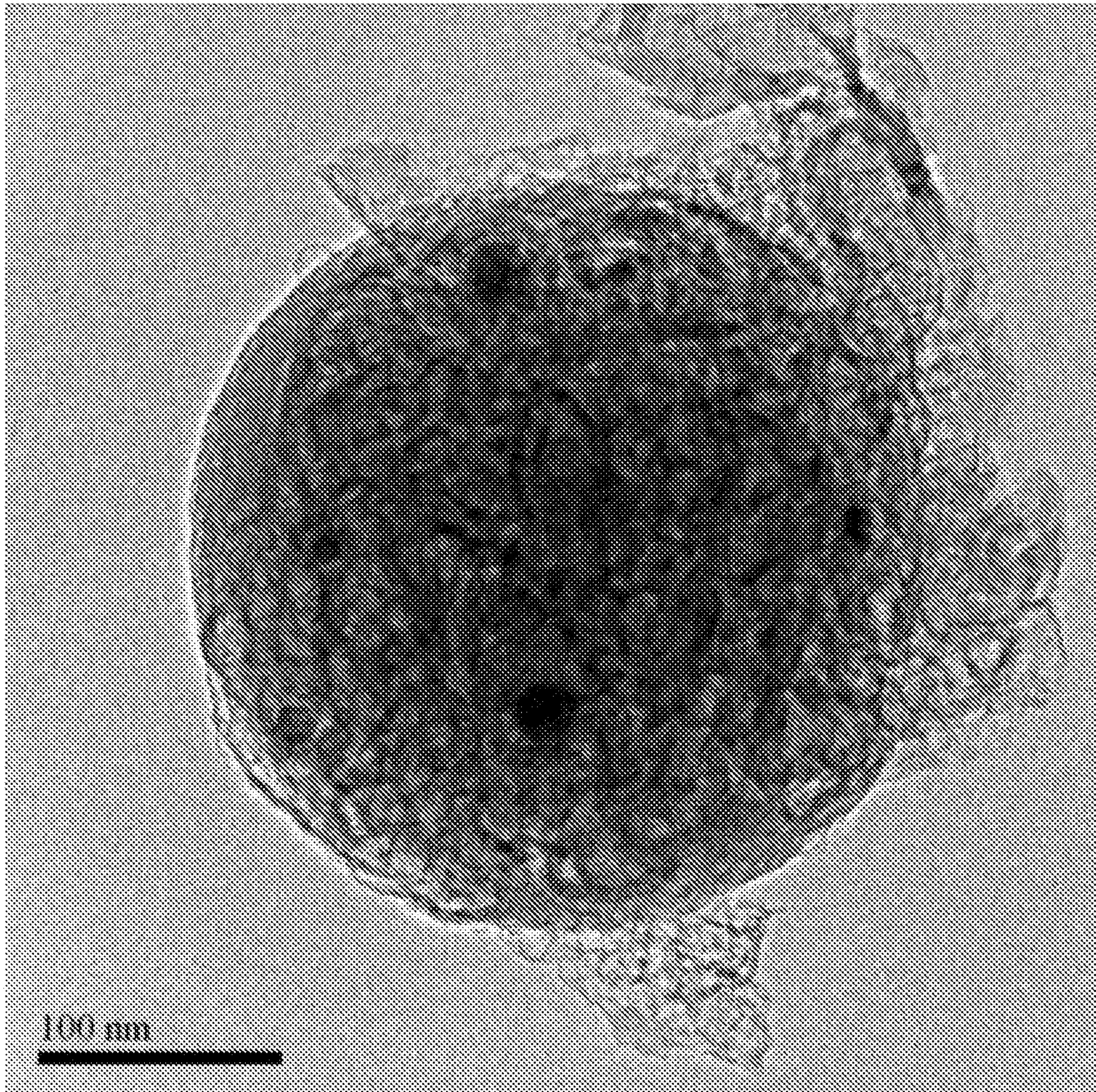


FIG. 5

Hydrothermal Conditions		0 wt% Solution A (180g Glucose in 1.5 L)	0.05 wt% Solution A + 0.09g KH_2PO_4	0.1 wt% Solution A + 0.18g KH_2PO_4	0.3 wt% Solution A + 0.54g KH_2PO_4	0.9 wt% Solution A + 0.9g KH_2PO_4
200 °C for 20 min	Mean size (nm)	371	261	253	224	333
	C Yield	20.83%	26.83%	26.96%	25.78%	24.73%
200 °C for 30 min	Mean size (nm)	331	328	315	321	338
	C Yield	25.78%	27.08%	25.78%	29.4%	32.8%
210 °C for 0 min	Mean size (nm)	373	309	280	364	347
	C Yield	43.2%	26.04%	32.29%	33.85%	39.06%
210 °C for 10 min	Mean size (nm)	412	401	370	372	406
	C Yield	44.27%	41.15%	38.54%	36.72%	46.35%

FIG. 6

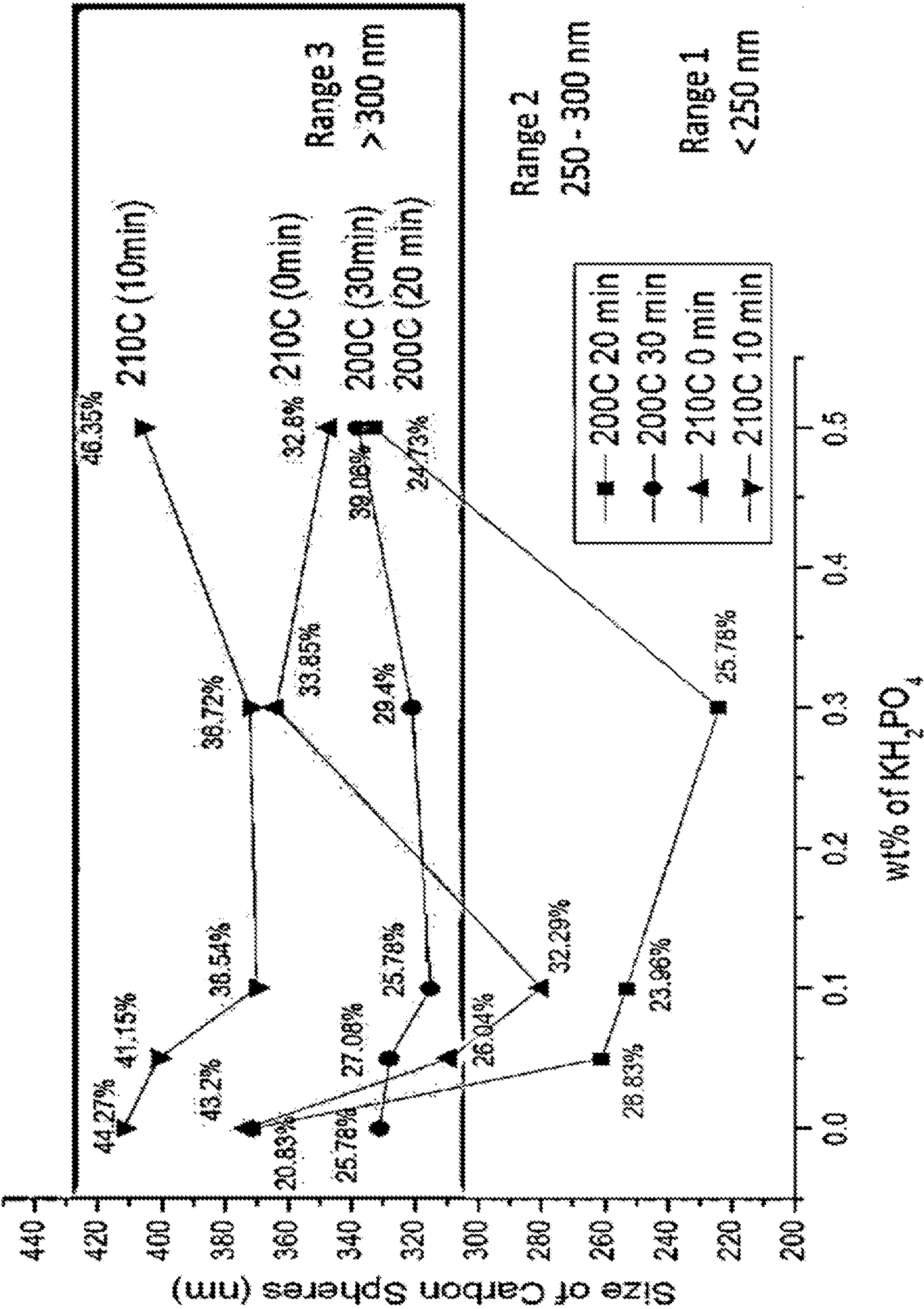


FIG. 7

Without KH_2PO_4			With KH_2PO_4			Yield
Hydrother mal condition	Mean size	Yield	Hydrother mal condition	Mean size	Yield	
180 °C for 180 min	250 nm	14.60%	200 °C for 20 min	253	23.96%	+64.11%
190 °C for 90 min	310 nm	15.50%	210 °C for 0 min	309	26.04%	+68.0%
200 °C for 30 min	335 nm	25.78%	200 °C for 30 min	338	32.8%	+27.23%

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FIG. 8A

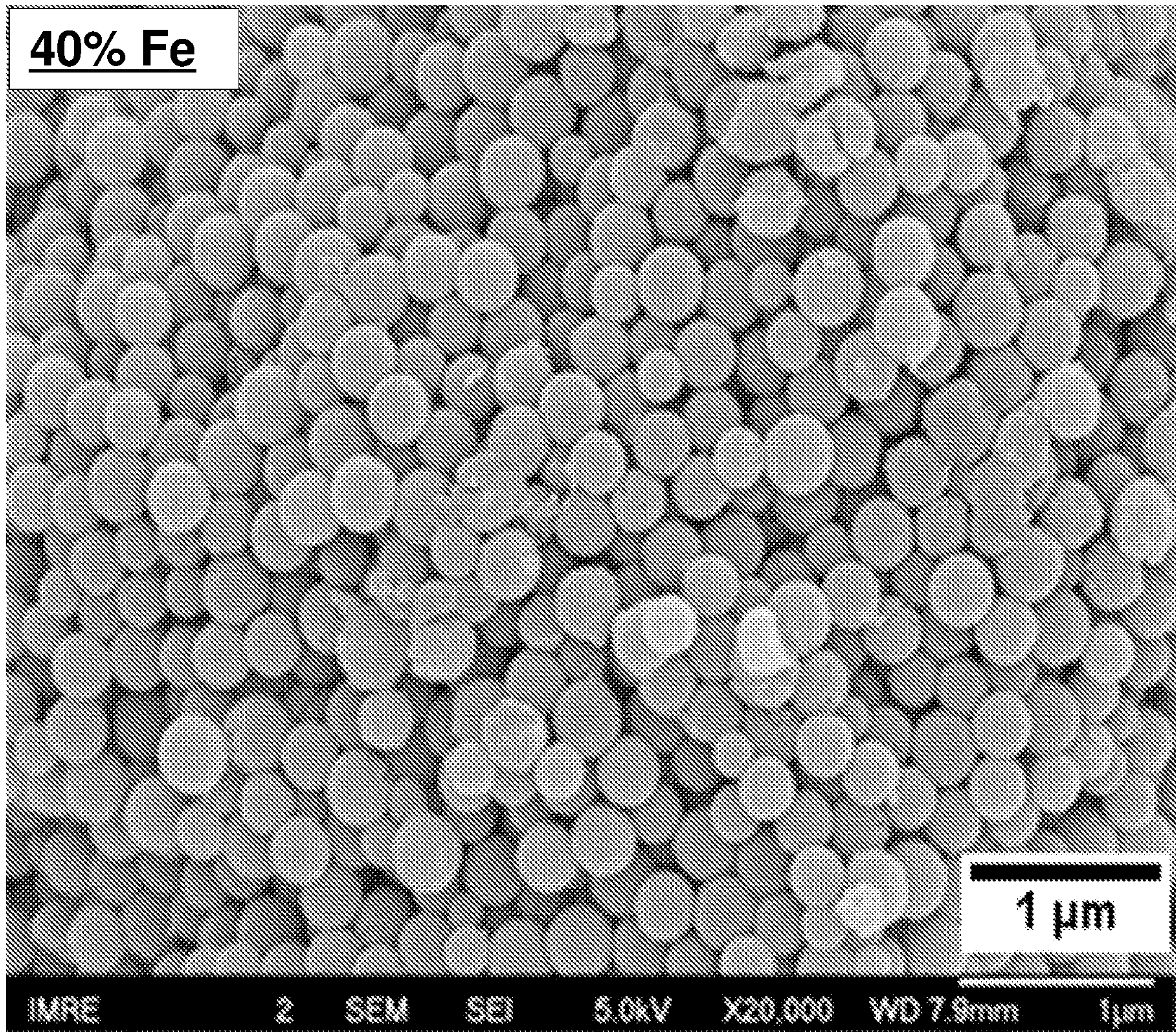


FIG. 8B

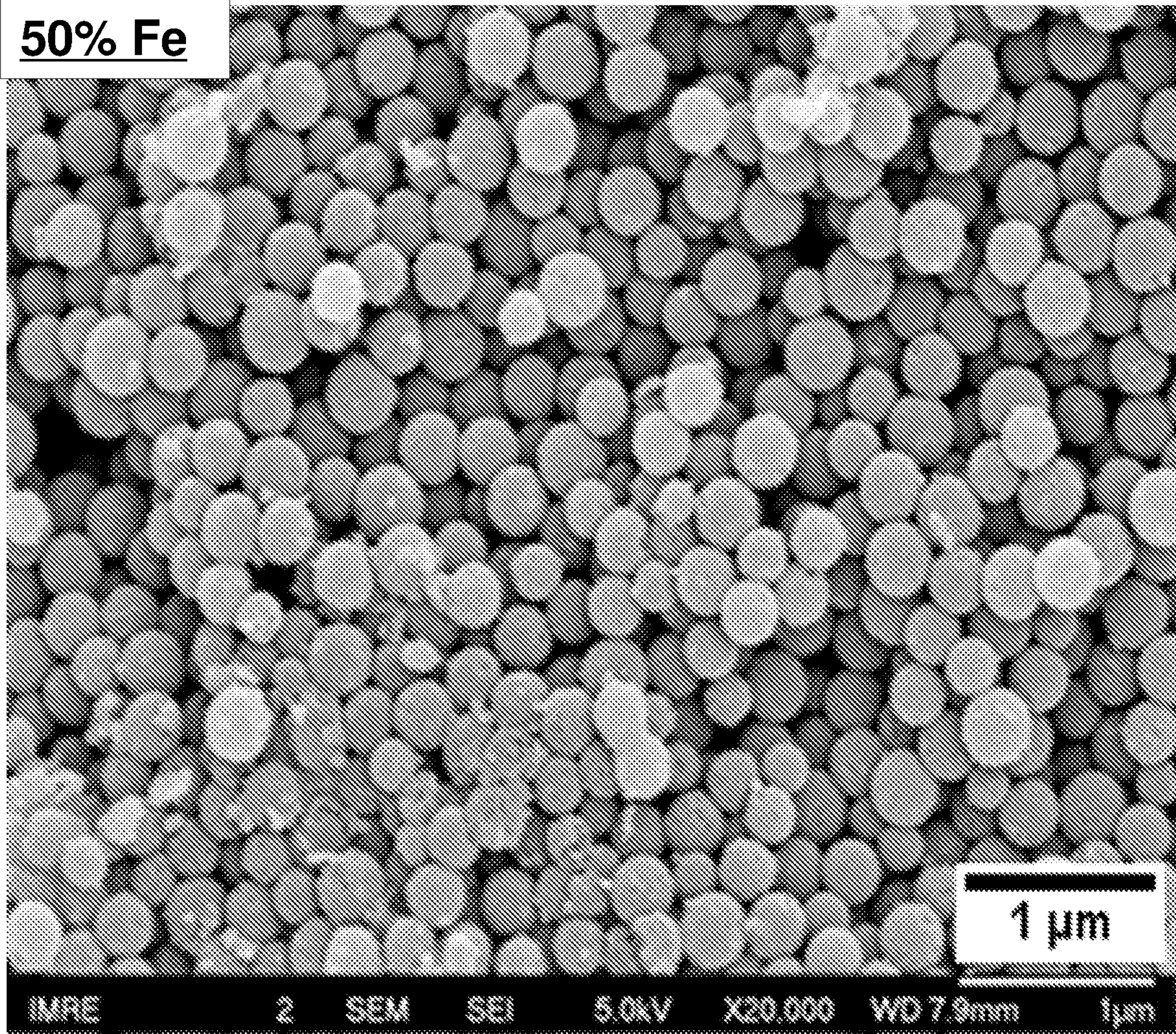
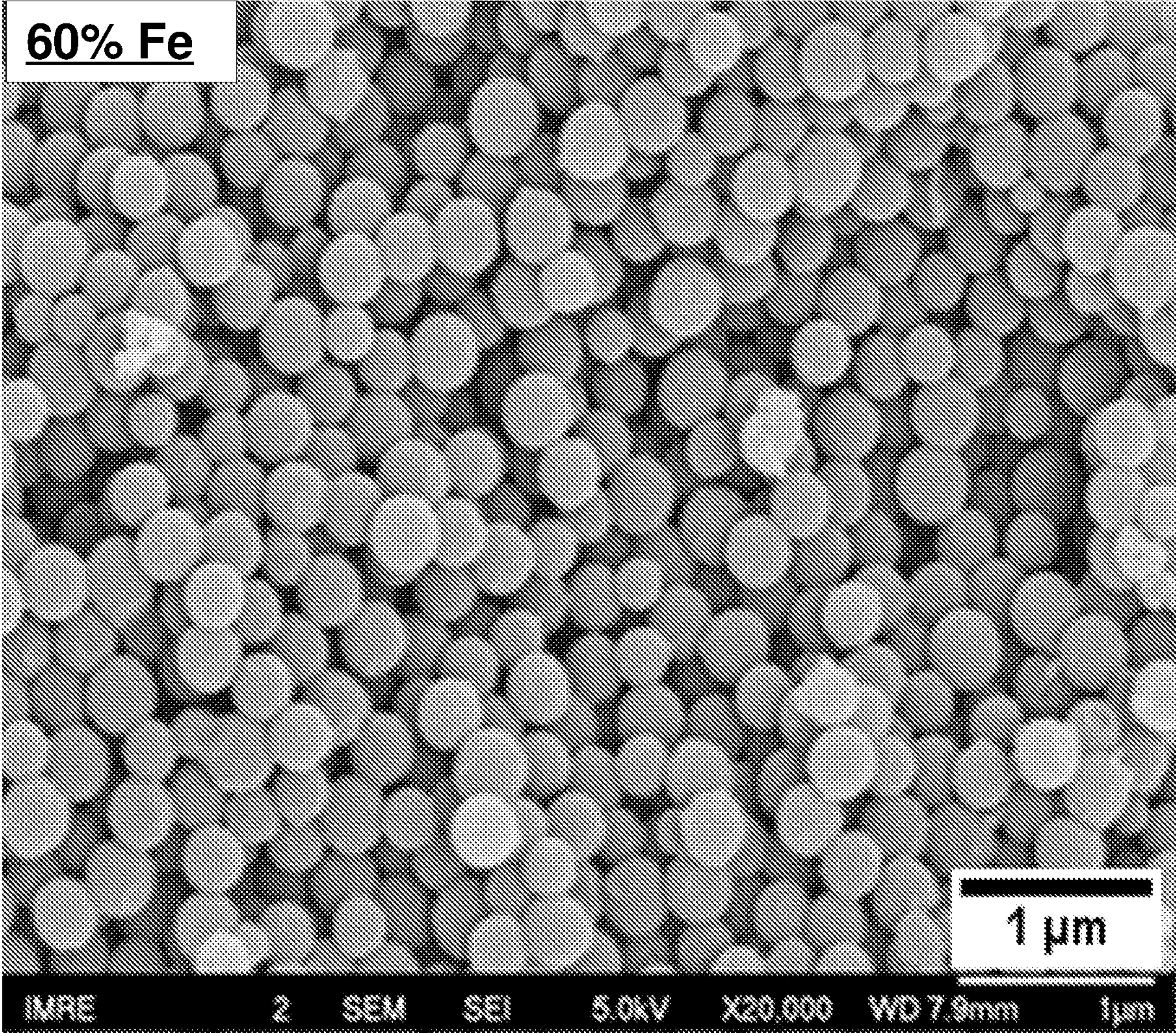
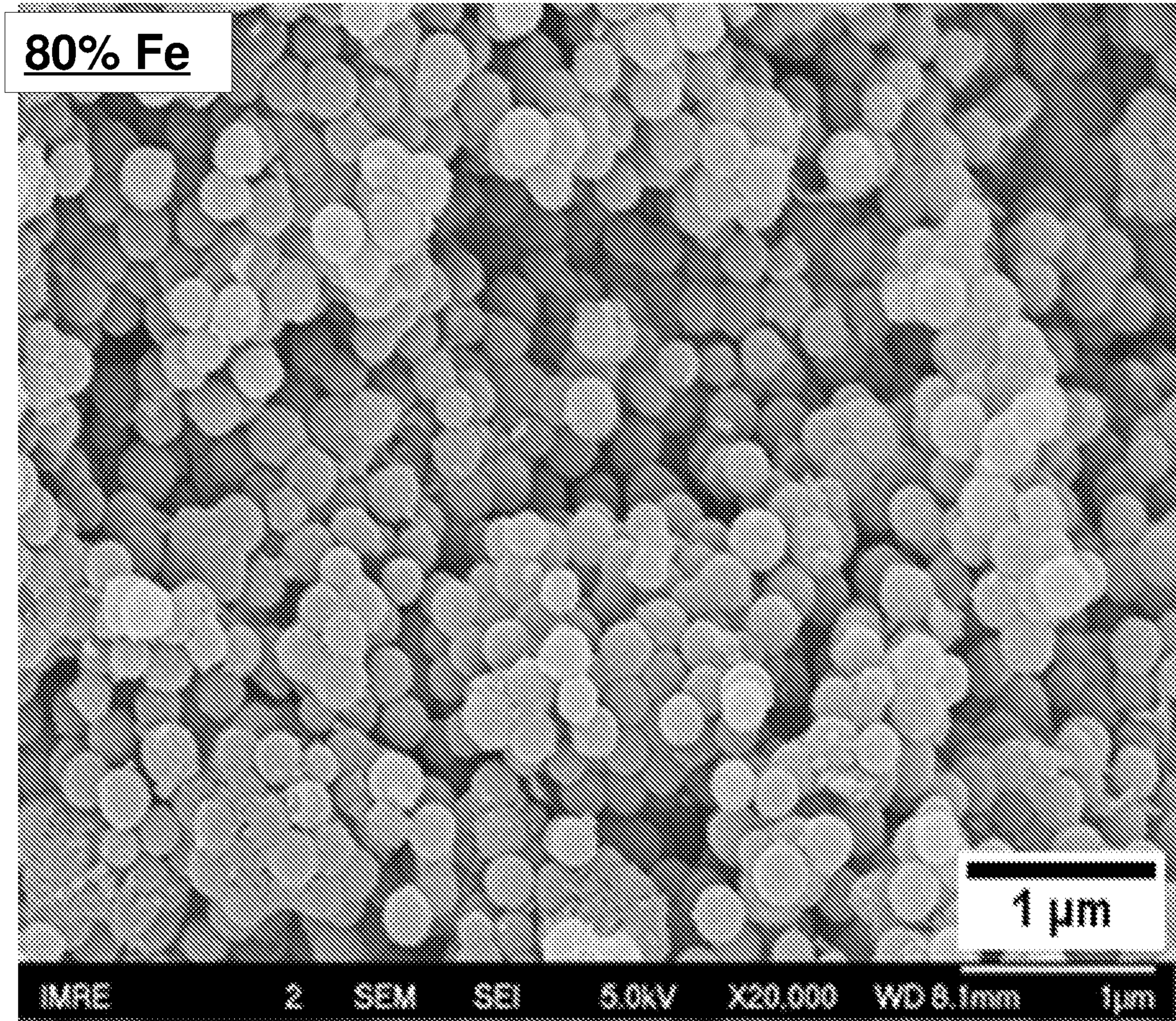


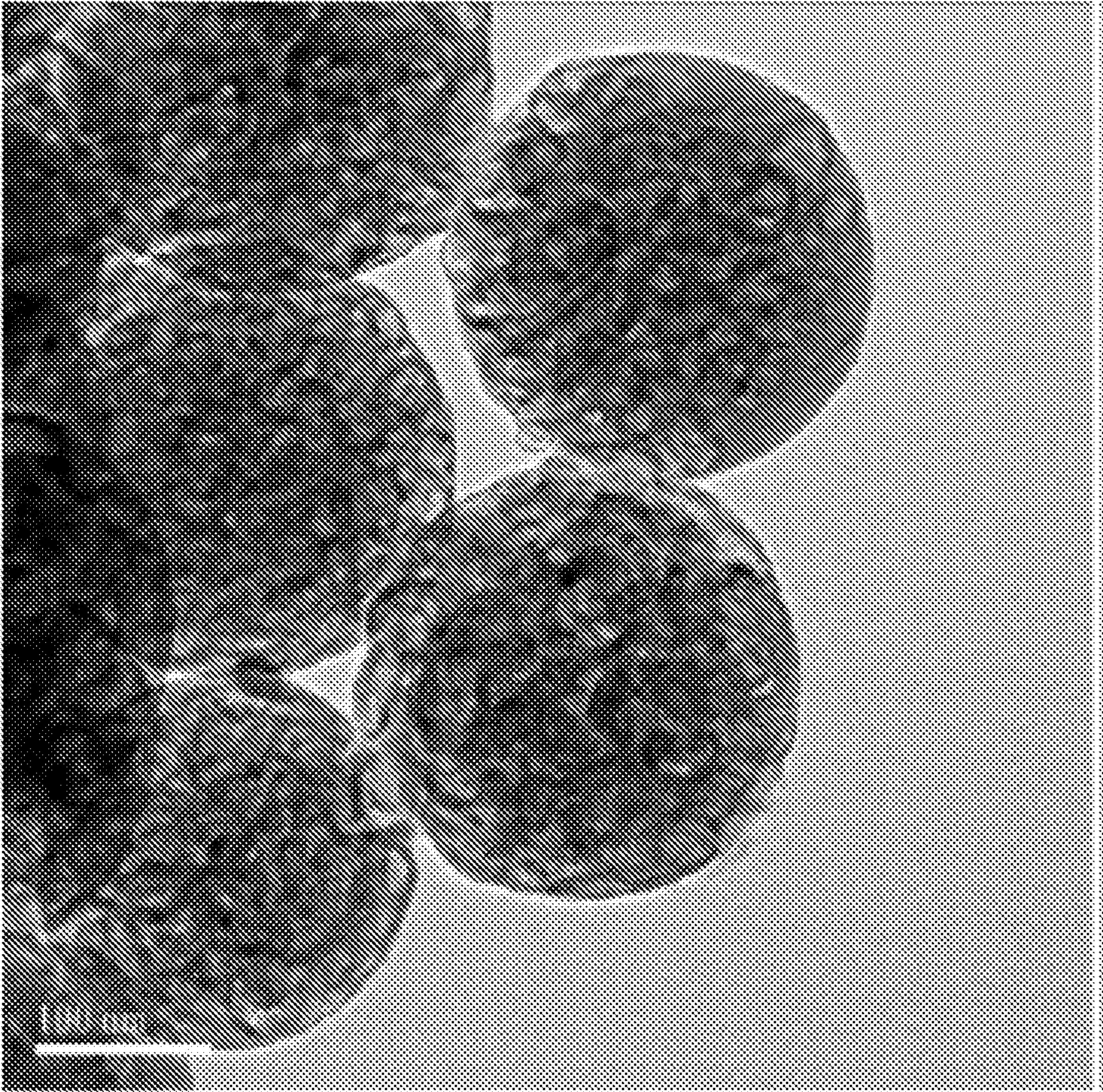
FIG. 8C



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FIG. 8D



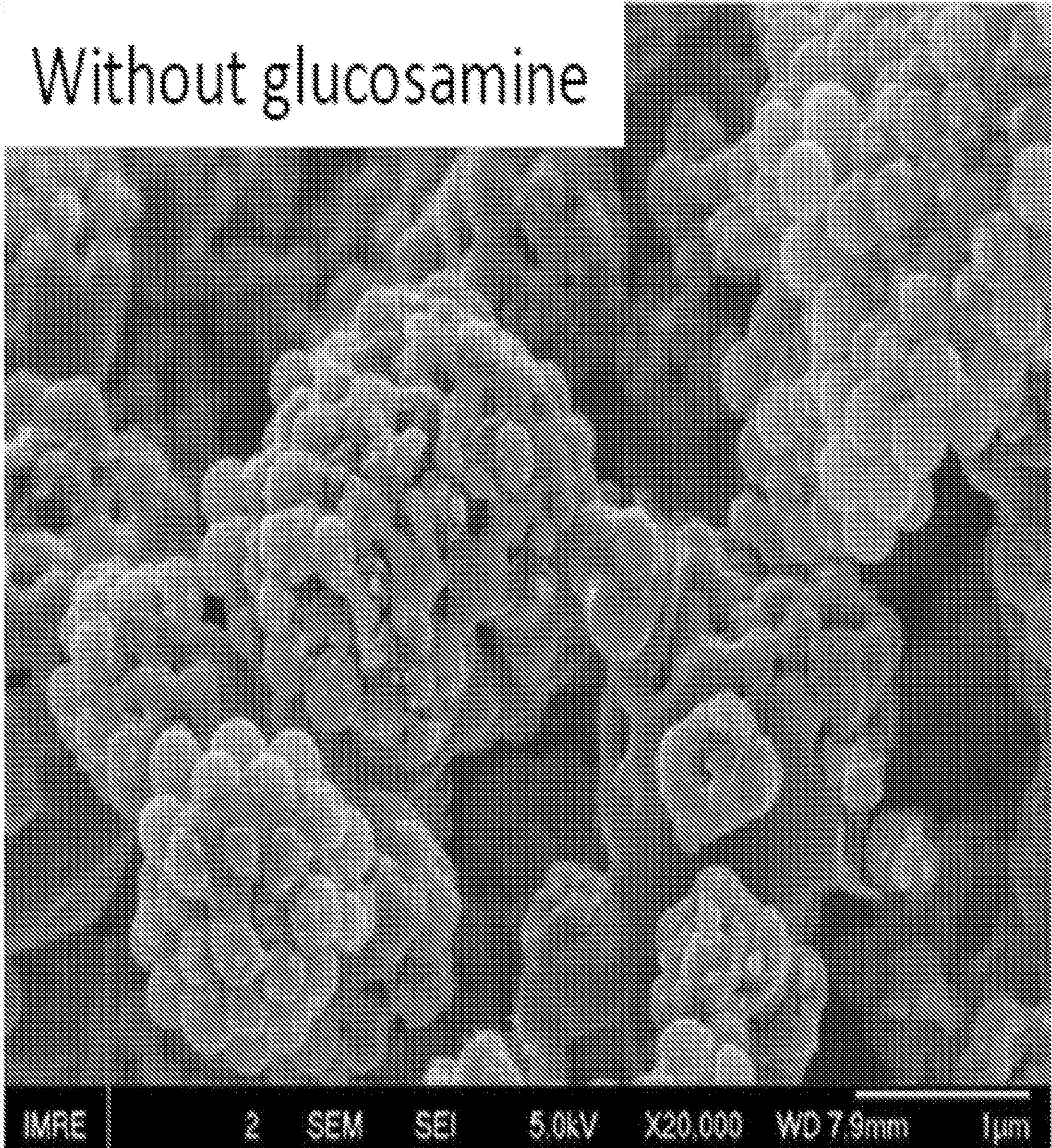
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FIG. 8E



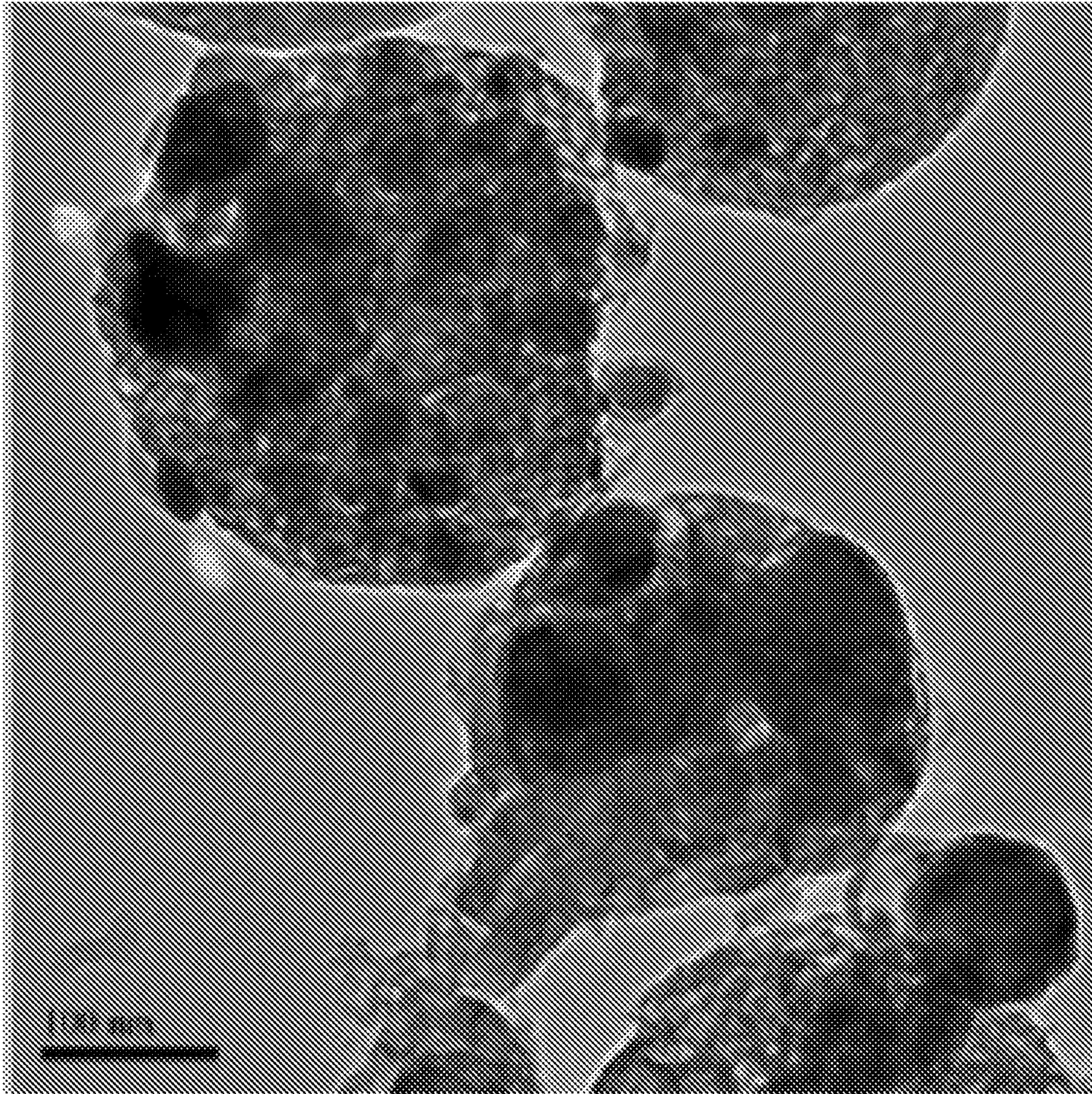
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FIG. 8F

Without glucosamine



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FIG. 8G



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FIG. 9

Time (Hrs)	0%	0.05%	0.1%	0.3%	0.5%
0	0	0	0	0	0
1	0	0	0	0	0
2	18.18	5.71	10	16.00	17.89
3	37.27	18.57	22.14	34.00	35.79
4	44.55	22.86	27.86	43.00	44.21
5	60.00	31.42	37.14	59.00	57.89
6	73.64	40.71	47.14	75.00	73.68
7	80	43.57	47.86	79.00	81.05
8	88.18	49.29	53.57	86.00	87.37
24	140.27	117.86	130.79	161.40	147.16
48	129.55	132.43	144.28	166.10	137.16
72	120.36	139.86	146.78	160.80	127.89
96	112.36	142.34	147.04	155.00	118.95
Max scavenging capacity per g/Fe	140.27	142.34	147.04	166.10	147.16

FIG. 10

Time (Hrs)	40%	50%	60%	70%	80%	90%
0	20.9	20.9	20.9	20.9	20.9	20.9
2	19.5	20.4	20.2	19.2	19.9	19.9
6	16.6	19.2	16.2	17.1	17.3	17.3
8	14	17.9	12.8	14.3	14.4	14.4
24	2.31	9.03	2.23	2.38	2.41	2.41
48	2.74	1.85	2.79	2.67	2.84	2.84
72	2.97	2.06	3.04	2.92	3.12	3.1
Max scavenging capacity per g/Fe	238.38	190.5	155.58	132.29	115.56	102.72

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FIG. 11

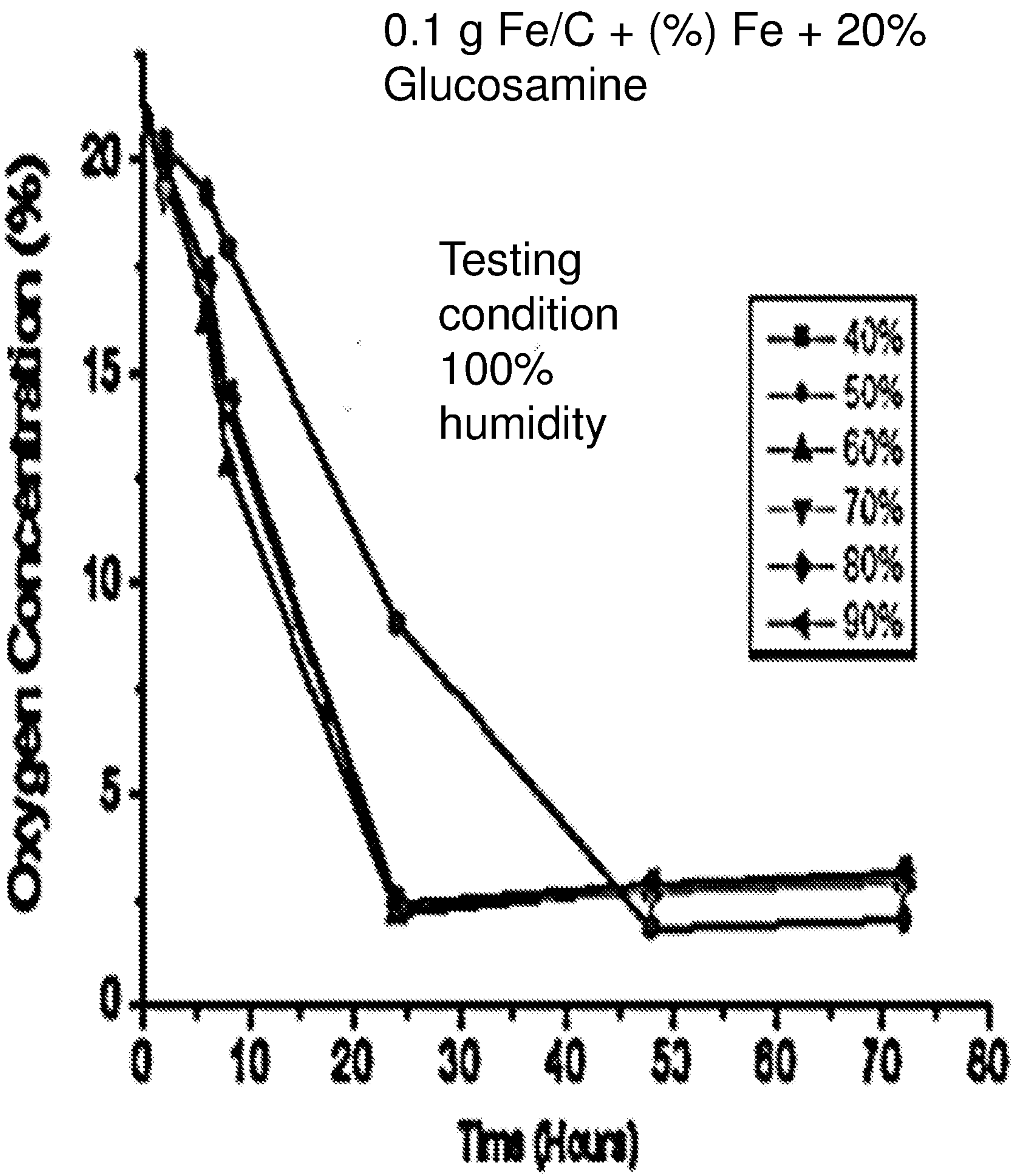


FIG. 12

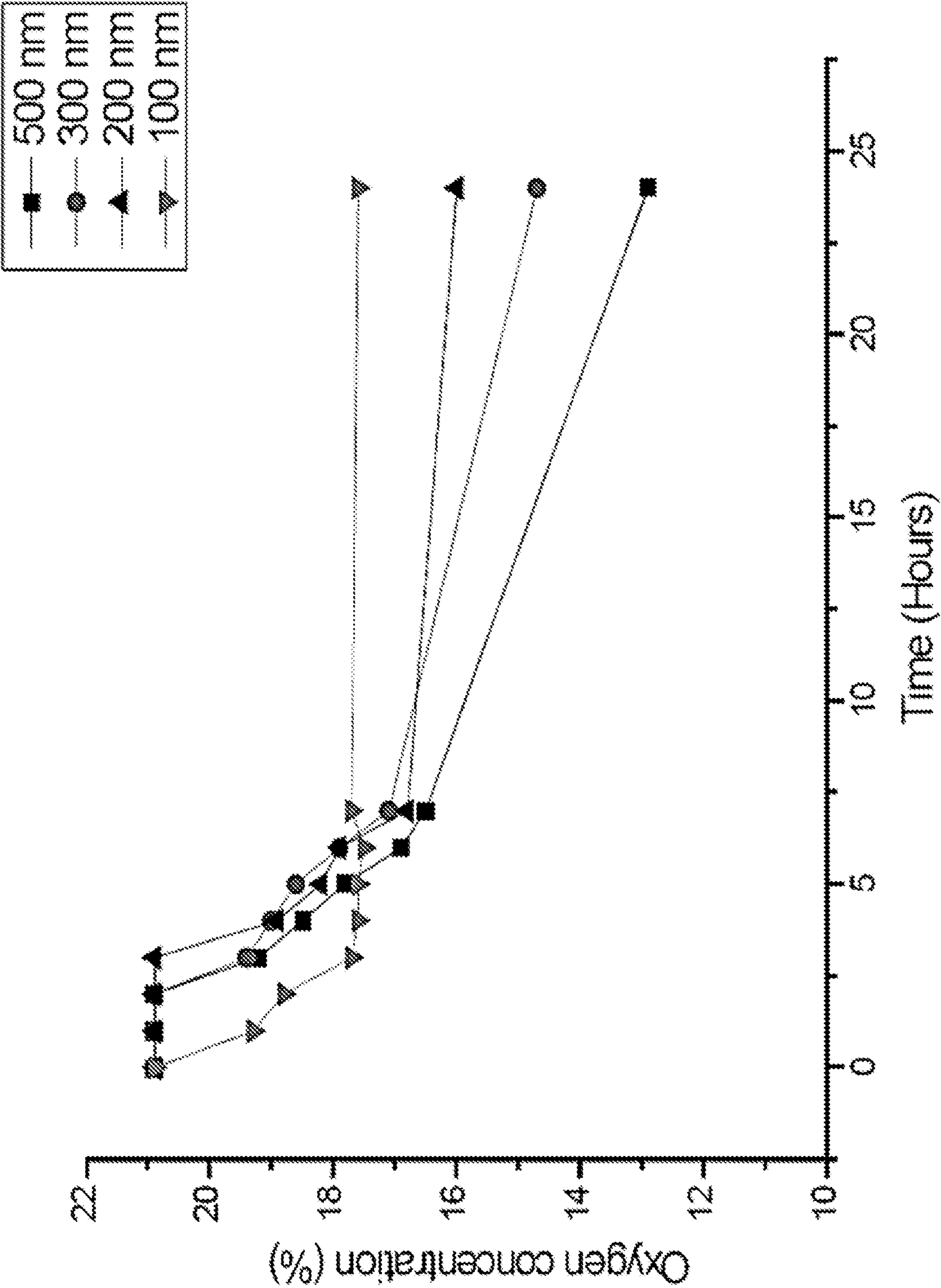


FIG. 13

Time (Hrs)	500 °C (3 hrs)	500 °C (12 hrs)	600 °C (3 hrs)	700 °C (3 hrs)	800 °C (3 hrs)	900 °C (3 hrs)
0	20.9	20.9	20.9	20.9	20.9	20.9
1	20.9	20.9	20.9	20.9	20.9	20.9
2	20.9	20.9	20.9	20.5	18.8	19.4
3	20.9	18.9	19.2	18.2	17.2	17.3
4	20.9	18.2	18.3	17	16.3	15.5
5	20.9	17.2	17.4	16	15.9	14
6	20.9	15.9	16.7	15.6	14.9	13.3
7	20.9	15.6	15.8	14.4	14.4	11.6
8	20.9	15	15.1	13.3	13.6	10.4
24	20.9	10.6	9.51	8.48	8.1	7
48	20.9	10.6	8.85	7.33	7.1	5.15
72	20.9	10.8	8.89	7.53	7.1	3.54
96	20.9	11.3	9.45	8.06	7.1	2.73
Max scavenging capacity per g/Fe	0	93.64	120.00	135.7	138	165.18

FIG. 14

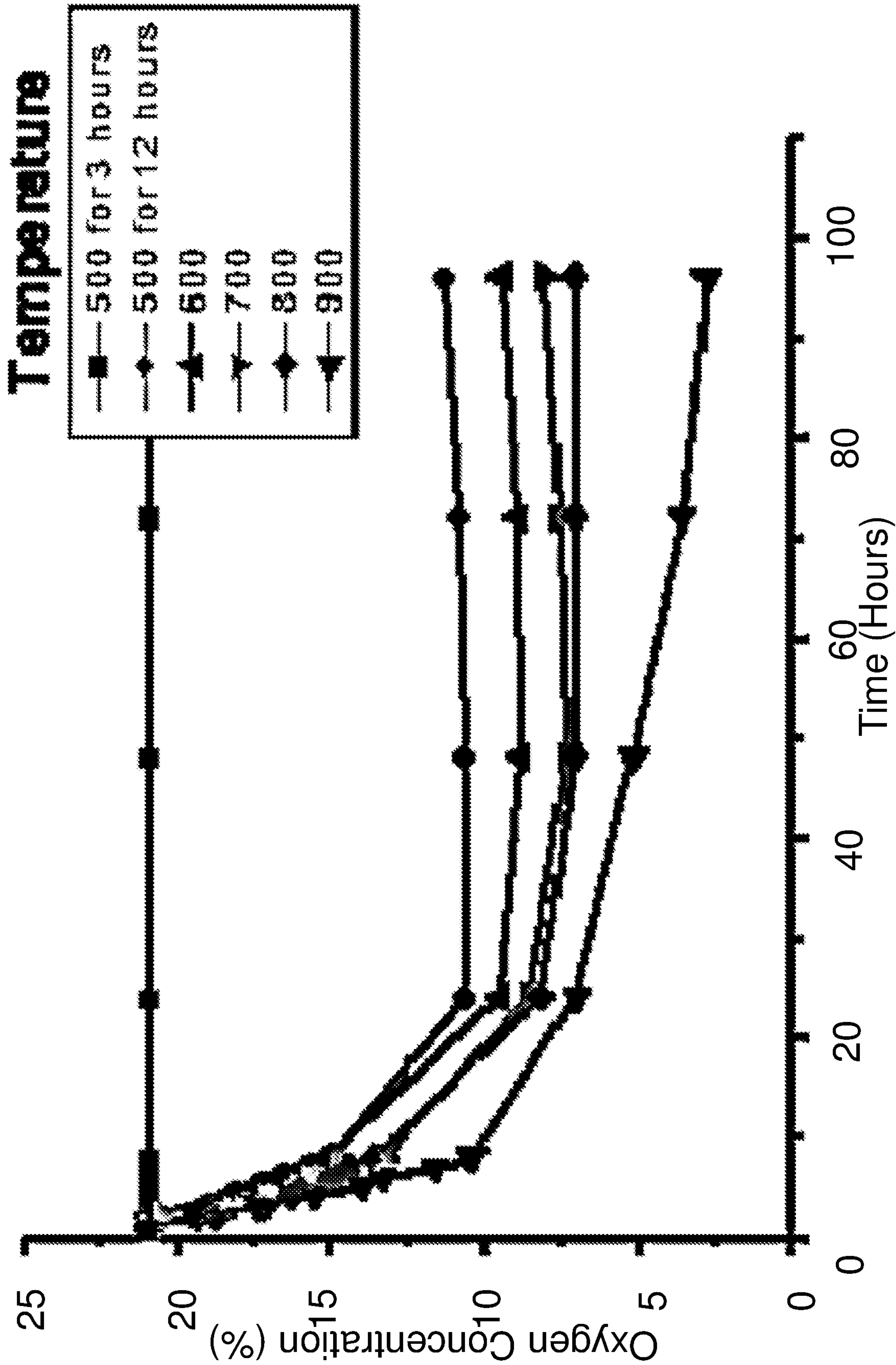


FIG. 15

Time (Hrs)	500 °C (3 hrs)	800 °C (3 hrs)
0	20.9	20.9
2	18.6	19.6
6	15.1	15.4
8	14.2	10.9
24	14	2.33
48	14.8	3.72
72	14.7	3.9
Max scavenging capacity per g/Fe	69	185.7

FIG. 16

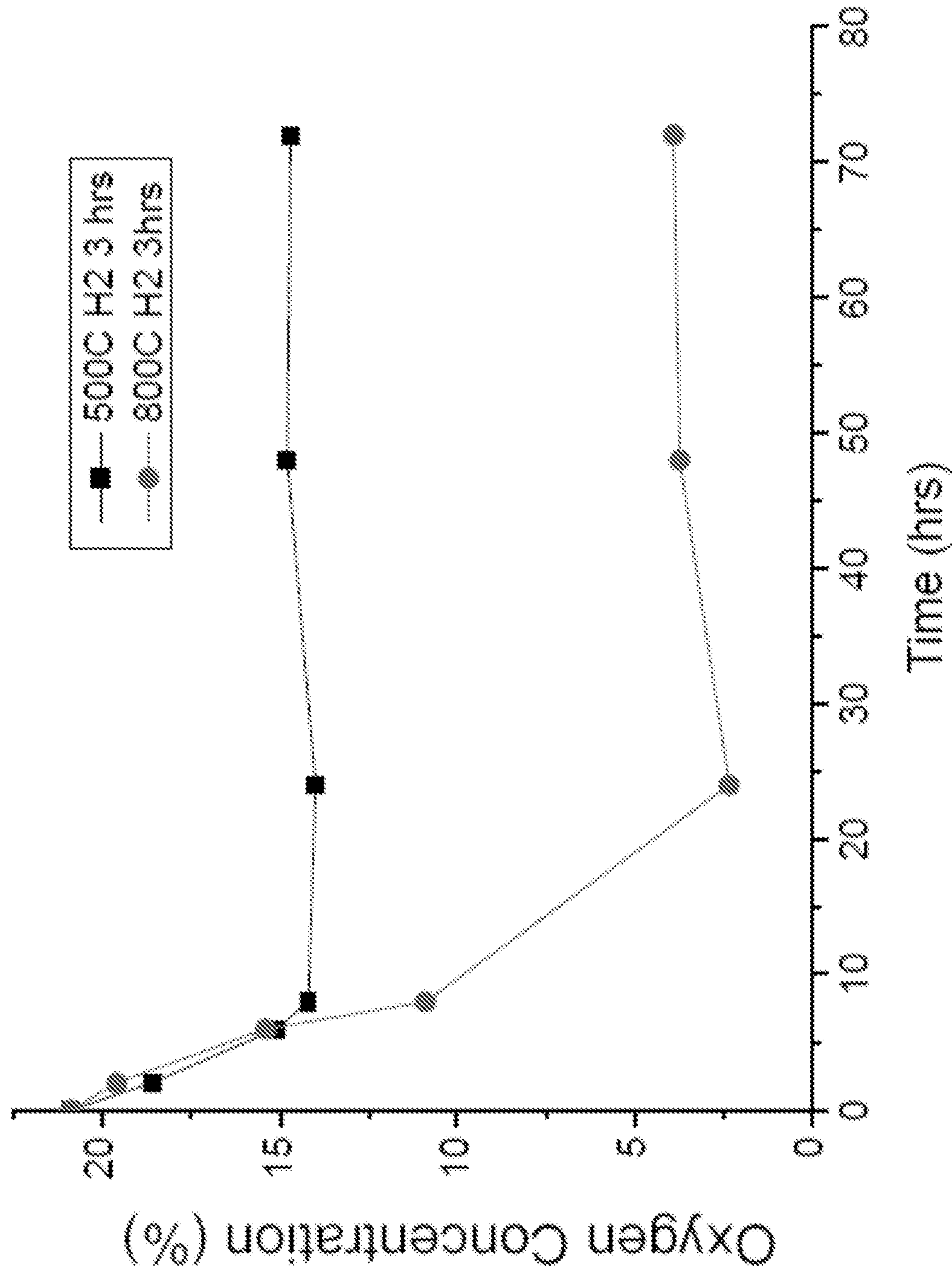


FIG. 17

Humidity	23%	43%	63%	75%	100%
Max scavenging capacity per g/Fe	0	60	59	118.5	138

FIG. 18

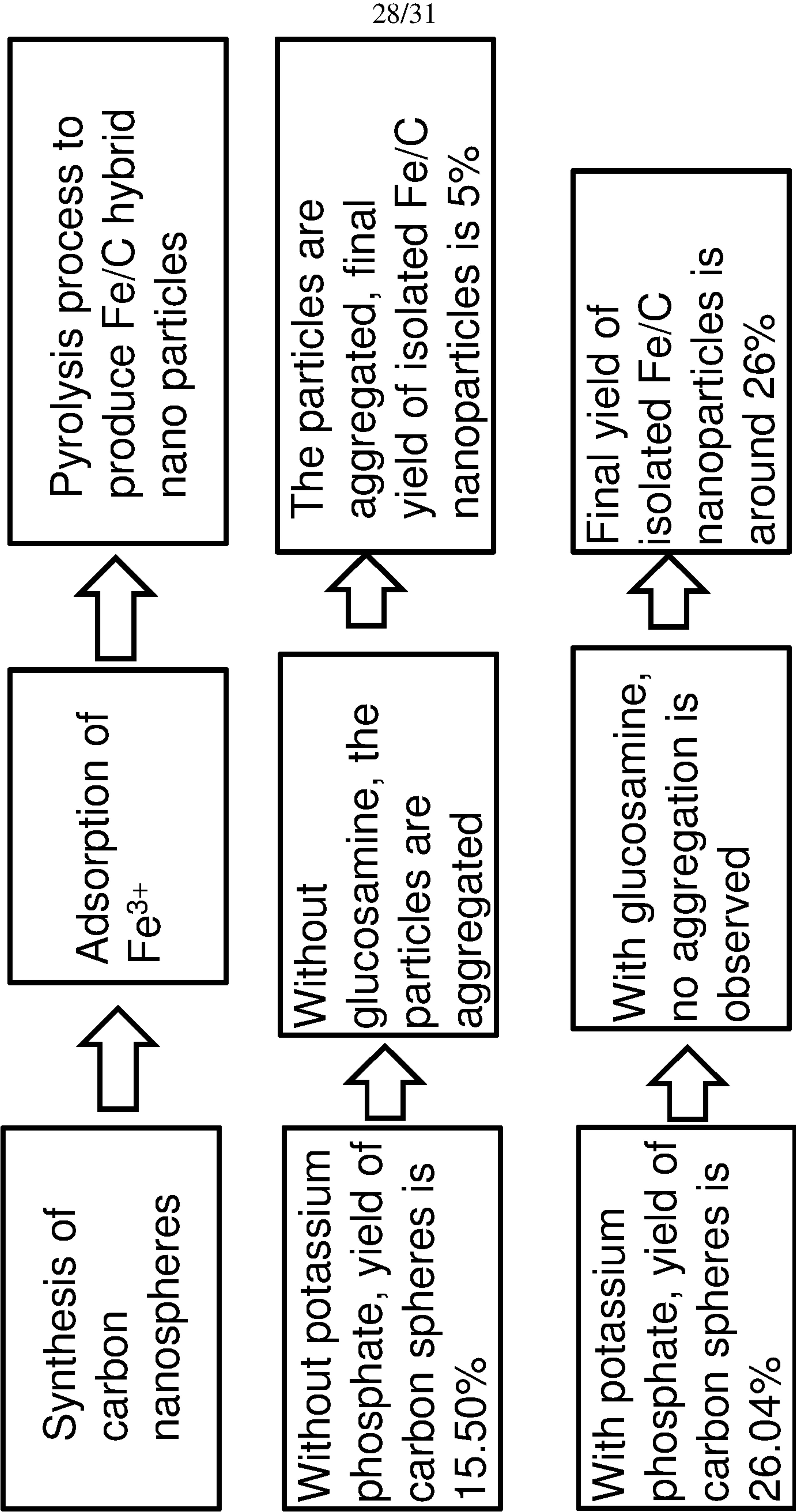


FIG. 19A

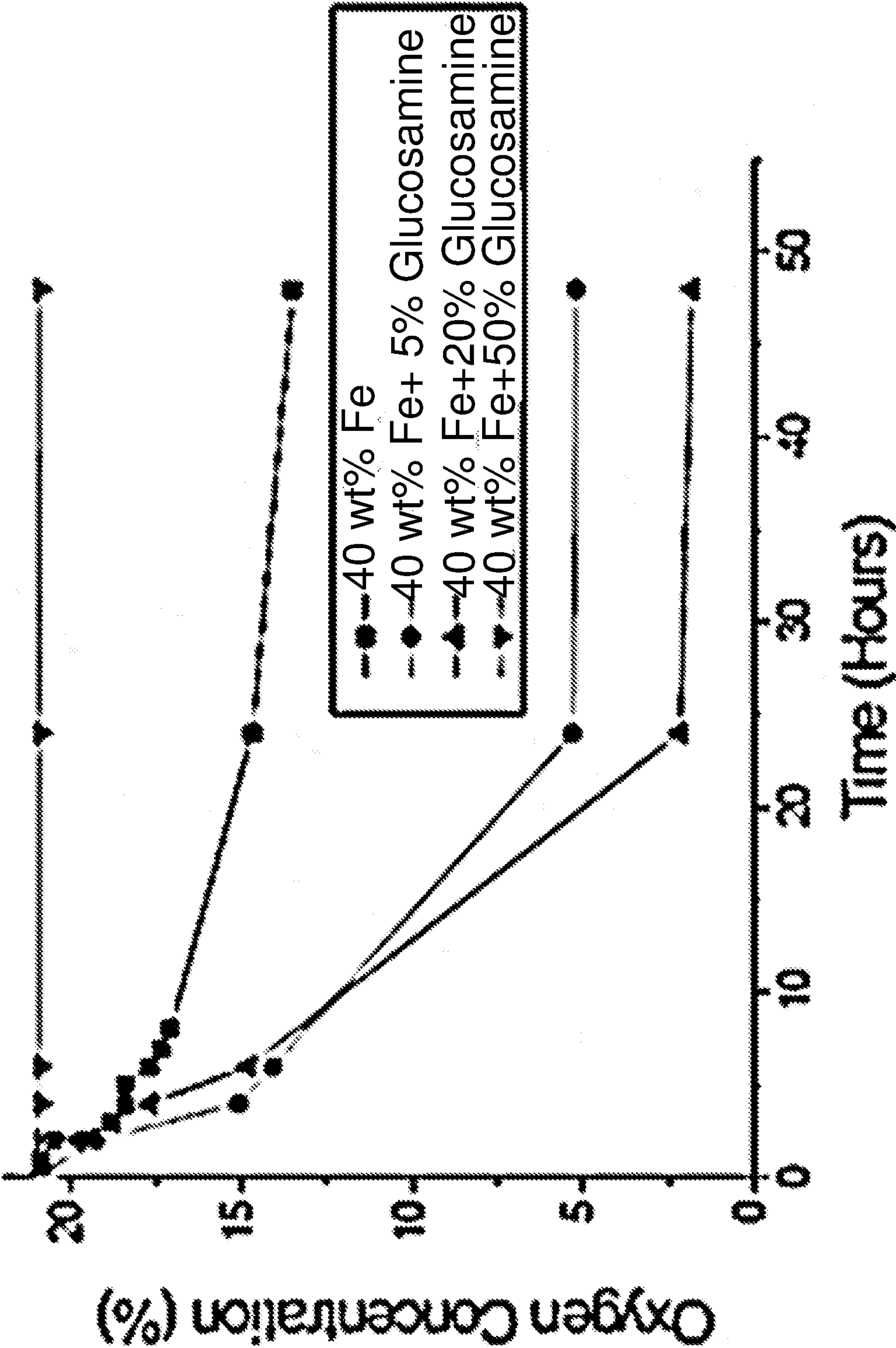


FIG. 19B

Sample	O ₂ Adsorption Capacity (cc/g Fe)
40% Fe	84.09
40% Fe with 5 wt% Glucosamine	195.88
40% Fe with 20 wt% Glucosamine	238.38
40% Fe with 50 wt% Glucosamine	0

FIG. 20

