

Electronic Supplementary Information (ESI) 1

Growth of ZnO needles

Table 1.1 Growth of ZnO materials subjected to microwave irradiation between 16-20 minutes

Power (W)	Time (min)	Yield (g)
150	10-15	No precipitate
150	16	0.003/10%
150	18	0.004/12%
150	20	0.022/73%

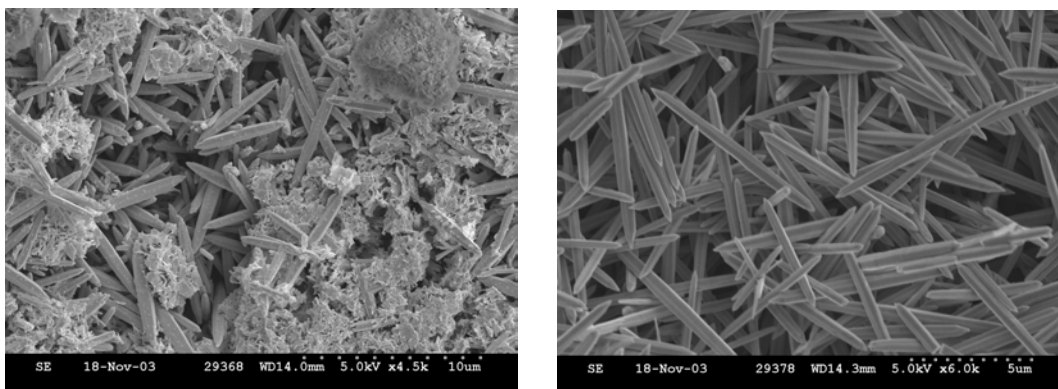


Figure 1.1 SEM of ZnO formed after the microwave irradiation A) 16 min b) 18 min

Table 1.2 XRD data of product of microwave irradiation after 16-20 minutes

JCPDS (36-1451)			16 Minutes		18 Minutes		20 Minutes	
<i>hkl</i>	2 θ	I	2 θ	I	2 θ	I	2 θ	I
100	31.76	57	31.67	100	31.56	100	31.84	100
002	34.42	44	34.13	18	34.23	7		
101	36.25	100	36.08	56	36.02	30	36.34	7
102	47.53	23	47.32	8				
110	56.60	32	56.26	23	56.35	16	56.63	9
103	62.86	29	62.67	10	62.62	4		
200	66.37	4	66.18	6	66.12	6	66.03	5
112	67.96	23	67.78	11	67.68	4		
201	69.09	11	68.95	7	68.89	3	69.12	2

Electronic Supplementary Information (ESI) 2

Effect of Hot Filtration

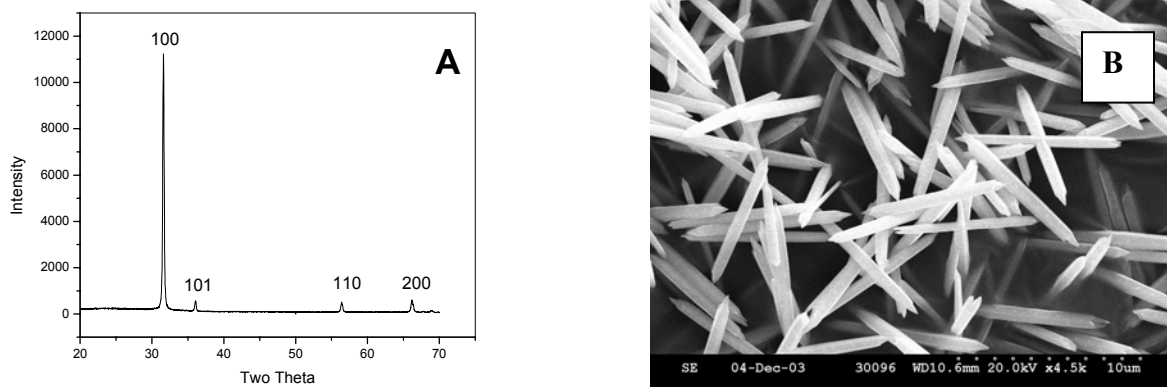


Figure 2.1: A) XRD and B) FESEM of ZnO resulting from hot filtration

Table 2.1 Comparison with JCPDS data of XRD data from ZnO isolated by hot filtration

ZnO JCPDS file 36-1451			ZnO by Hot filtration	
<i>hkl</i>	2 θ	Intensity	2 θ	Intensity
100	31.76	57	31.56	100
002	34.42	44		
101	36.25	100	36.18	5
102	47.53	23		
110	56.60	32	56.45	4
103	62.86	29		
200	66.37	4	66.16	5
112	67.96	23		
201	69.09	11		

Electronic Supplementary Information (ESI) 3
Effect of counter ions

Table 3.1 Morphologies of particles produced when counter-ion is changed

Counter ion	Zn ²⁺ conc.	Urea conc.	Morphology	Yield
Acetate	5 x10 ⁻³ M	5 x10 ⁻² M	Polydisperse rods	0.028 g/93%
Sulphate	5 x10 ⁻³ M	5 x10 ⁻² M	Sheets	0.024 g/ 80%

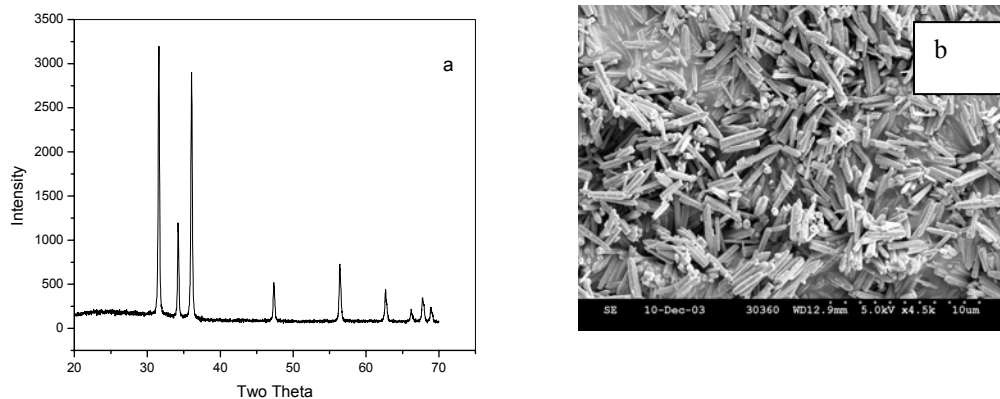


Figure 3.1 a) XRD and b) FESEM of sample prepared by the zinc acetate and urea on 20 minutes microwave irradiation

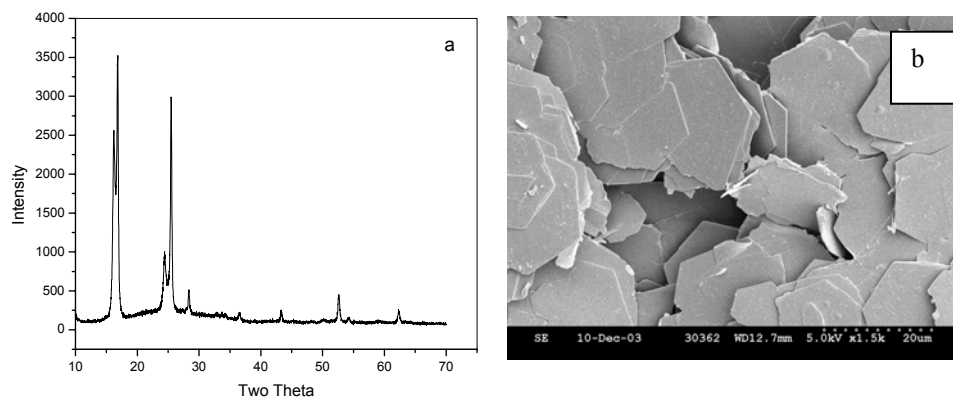


Figure 3.2 a) XRD and b) FESEM of sample prepared by the zinc sulphate and urea on 20 minutes microwave irradiation.

Table 3.1 XRD data of sample prepared by the zinc acetate and urea.

JCPDS (36-1451)			ZnO from Zinc acetate	
<i>hkl</i>	2 θ	Intensity	2 θ	Intensity
100	31.76	57	31.61	100
002	34.42	44	34.13	37
101	36.25	100	35.97	90
102	47.53	23	47.43	15
110	56.60	32	56.43	23
103	62.86	29	62.51	15
200	66.37	4	66.16	7
112	67.96	23	67.73	10
201	69.09	11	68.94	8