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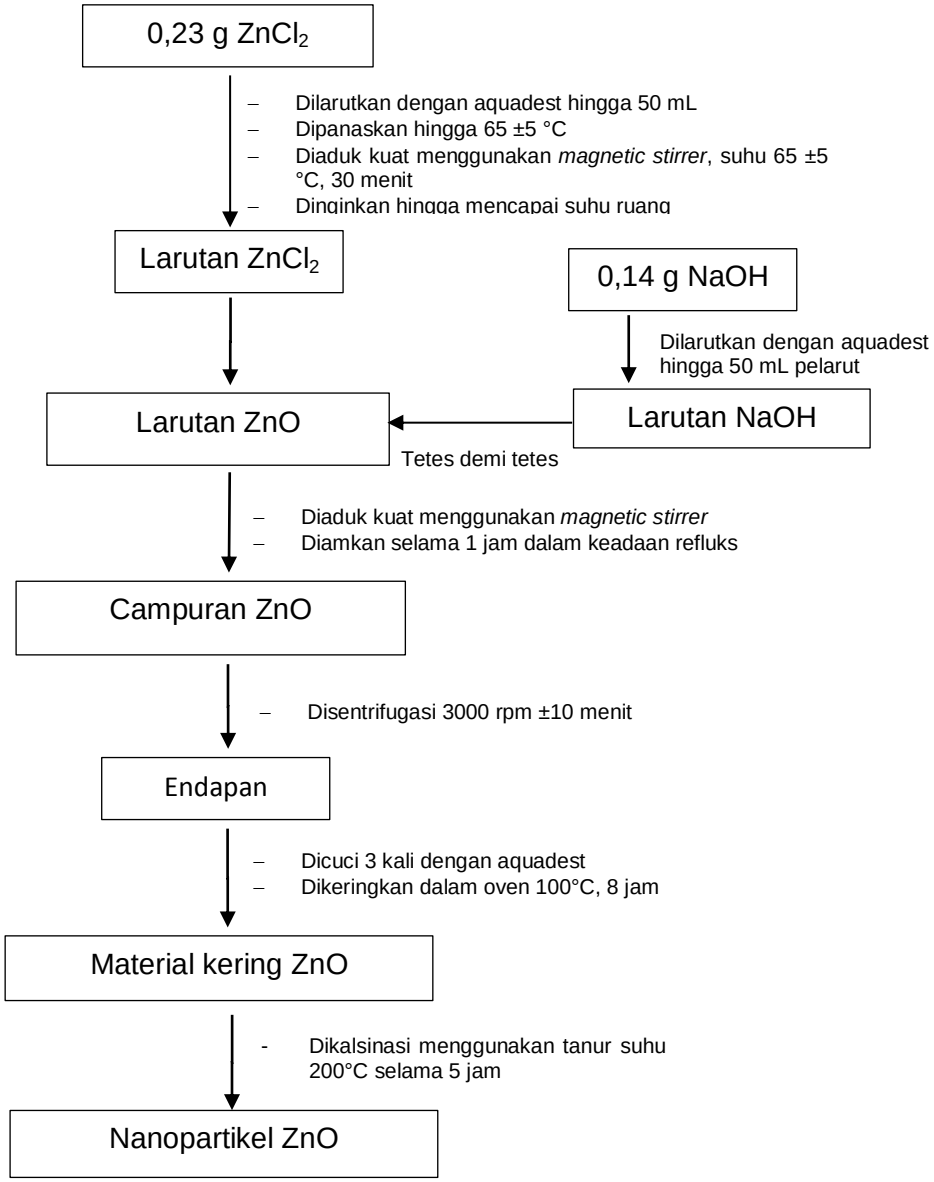
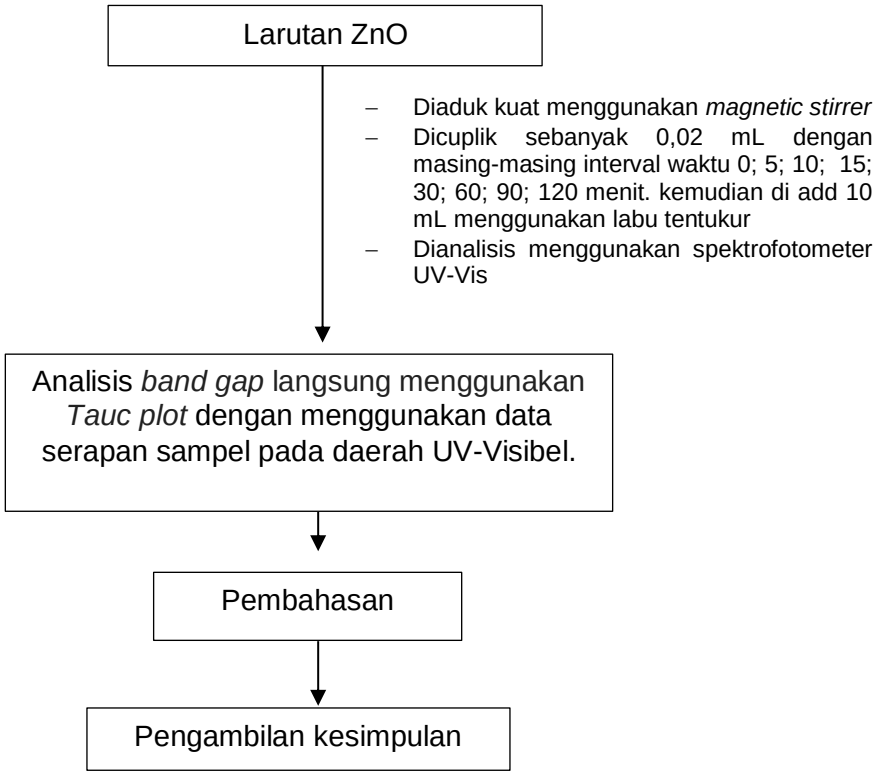
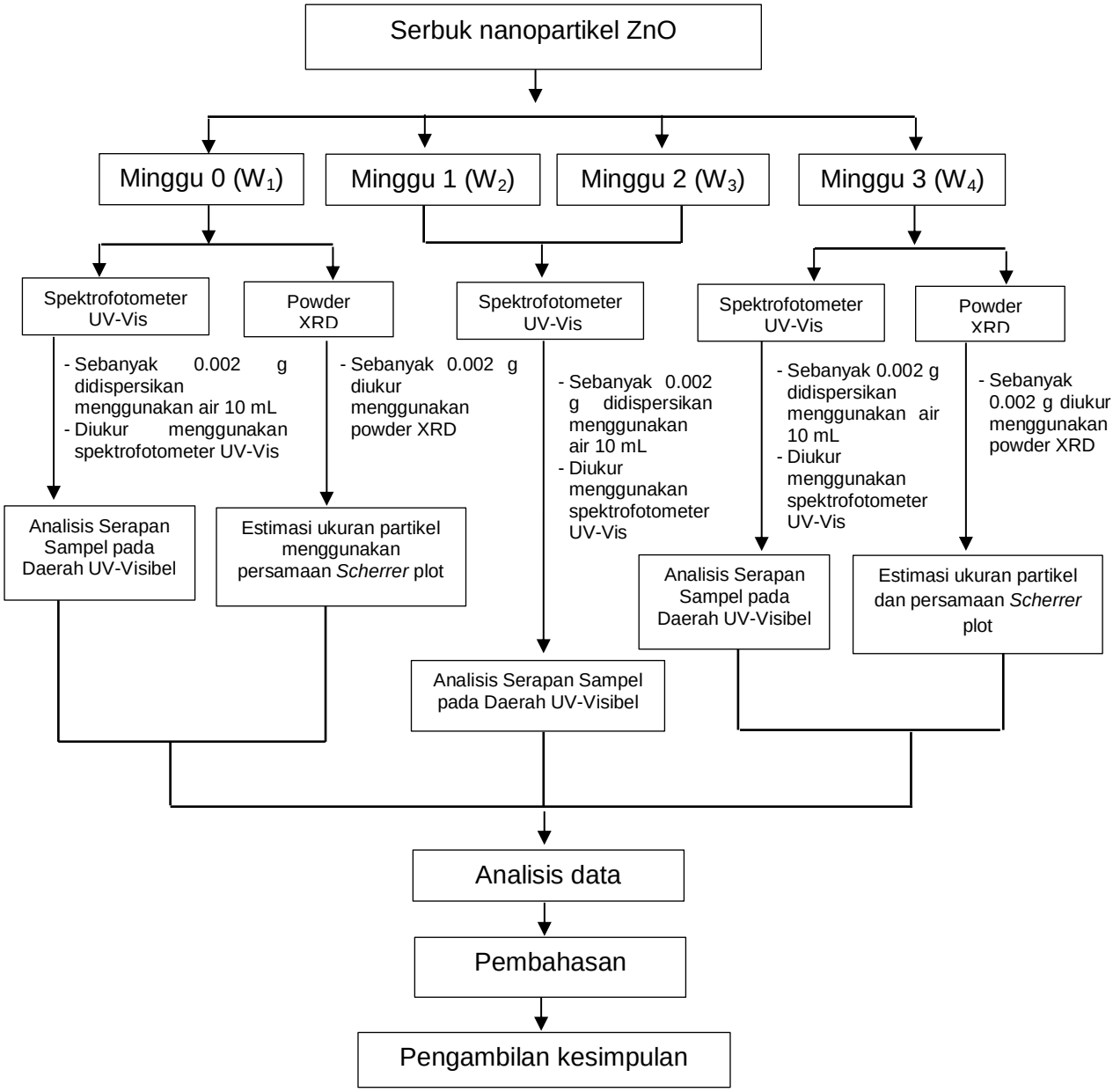
Lampiran 1. Skema Kerja Sintesis Nanopartikel ZnO



Lampiran 2. Skema Kerja Analisis Kinetika Pertumbuhan Kristal



Lampiran 3. Skema Kerja Analisis Stabilitas Dispersi ZnO Dalam Air



Lampiran 4. Perhitungan Bahan

Diketahui :

- $ZnCl_2$ 0,035 M dalam 50 ml
- NaOH 0,070 M dalam 50 ml
- BM $ZnCl_2$ = 136,30 g/mol
- BM NaOH = 40 g/mol
- BM Zn = 65,38 g/mol

Perhitungan sampel yang ditimbang

▪ **Untuk 0,035 M $ZnCl_2$ dalam 50 ml :**

$$M = \frac{g}{Mr} \; x \; \frac{1000}{V}$$

$$0{,}035 = \frac{g}{136{,}3} \; x \; \frac{1000}{250}$$

g = 1,1926 gram

▪ **Untuk 0,070 M NaOH dalam 50 ml :**

$$M = \frac{g}{Mr} \; x \; \frac{1000}{V}$$

$$0{,}070 = \frac{g}{40} \; x \; \frac{1000}{250}$$

g = 0,7 gram

% elemen Zn dalam ZnO

Ar Zn = 65,38

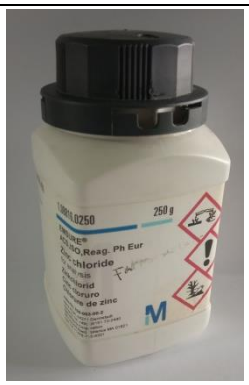
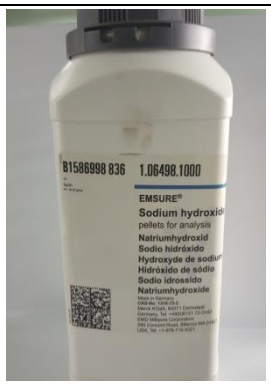
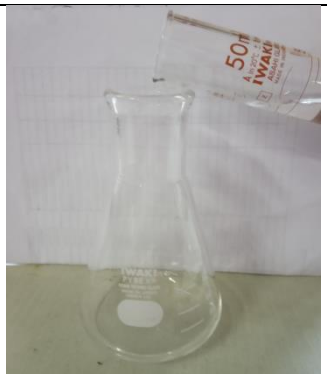
Ar O = 16

Mr ZnO = 81,38

Zn elemental = $\frac{65{,}38}{136{,}3} \; x$ 1,1926 g

g = 0,7 gram

Lampiran 5. Dokumentasi Penelitian

<table>
<tr><td> 

</td><td> 
</td></tr>
<tr><td>Gambar 13. Penyiapan bahan baku $ZnCl_2$ (kiri) dan NaOH (kanan)</td><td>Gambar 14. Penimbangan $ZnCl_2$</td></tr>
<tr><td> 
</td><td> 
</td></tr>
<tr><td>Gambar 15. Penimbangan NaOH</td><td>Gambar 16. Pelarutan $ZnCl_2$ dan NaOH dengan air deionisasi</td></tr>
<tr><td>  </td><td> 
</td></tr>
<tr><td>Gambar 17. Pemanasan larutan $ZnCl_2$ hingga 65 ± 5°C</td><td>Gambar 18. Pengadukan kuat larutan $ZnCl_2$ selama 30 menit suhu 65 ± 5°C</td></tr>
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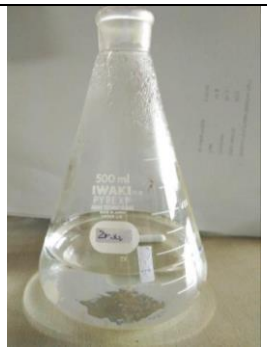
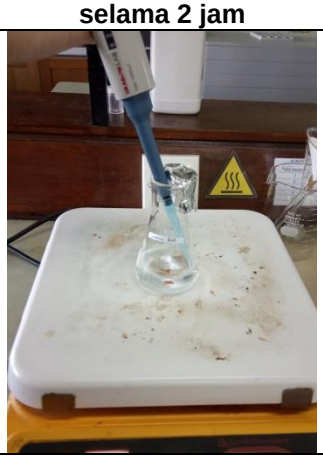


Gambar 19. Larutan NaOH (kiri) dan larutan $ZnCl_2$ (kanan)

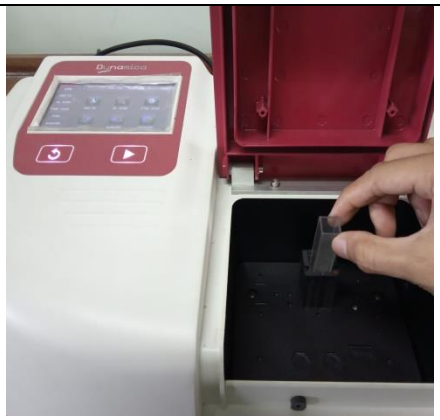
Gambar 20. NaOH dimasukkan ke larutan $ZnCl_2$ tetes demi tetes

Gambar 21. Pengadukan kuat larutan $ZnCl_2$ setelah ditetesi larutan NaOH selama 2 jam

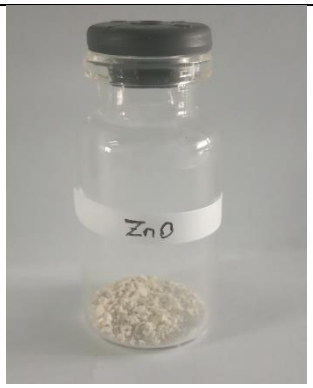
Gambar 22. Larutan stok nanopartikel ZnO



Gambar 23. Pencuplikan 0.2 ml larutan ZnO sembari diaduk kuat



Gambar 24. Pengukuran absorbansi larutan ZnO dengan variasi waktu 0; 5; 10; 15; 30; 60; 90; 120 menit

	
Gambar 25. Sampel disentrifugasi sebanyak 3 kali pengulangan	**Gambar 26. Sentrifugasi kecepatan 3000 rpm selama 10 menit**
	
Gambar 27. Pengeringan menggunakan oven suhu 100^{o}C selama 8 jam	**Gambar 28. Material kering ZnO**
	
29. Kalsinasi menggunakan tanur suhu 200^{o}C selama 5 jam	**Gambar 30. Sampel yang telah dikalsinasi dan siap untuk dikarakterisasi**

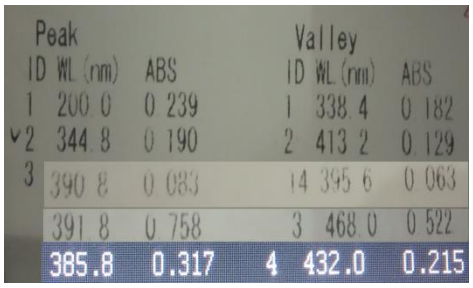
Gambar 31. Penimbangan nanopartikel ZnO untuk pengukuran absorbansi di minggu ke 2 dan ke 3

Gambar 32. Ultrasonikasi sampel sebelum dianalisis menggunakan spektrofotometer UV-Vis

Gambar 33. Analisis sampel menggunakan Spektrofotometer UV-Vis

Gambar 34. Analisis sampel menggunakan *powder* XRD

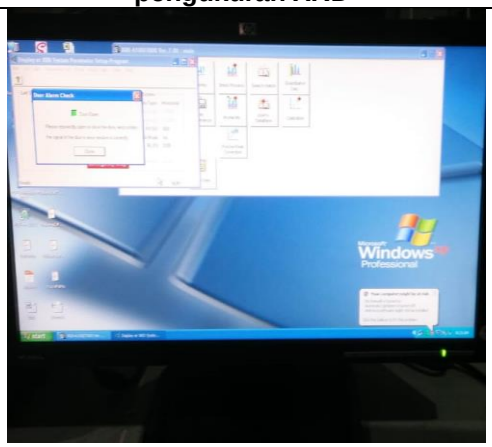
Gambar 35. Hasil spektrum pada layar spektrofotometer-UV Vis



Gambar 36. Hasil data print absorbansi

Gambar 37. Penyimpanan sampel pengukuran XRD

Gambar 38. Proses pengukuran difraksi nanopartikel ZnO



Gambar 39. Penginputan data difraktogram

Lampiran 6. Pola XRD standar dari struktur *wurtzite* ZnO berdasarkan JCPDS No. 36- 145