DAFTAR ISI

HALAMAN PENGESAHAN ........................................................................ ii
HALAMAN PERSEMBAHAN ................................................................... iii
KATA PENELITIAN .................................................................................. v
INTISARI ................................................................................................. vii
ABSTRACT .............................................................................................. viii
DAFTAR ISI .............................................................................................. ix
DAFTAR GAMBAR ................................................................................... xi
DAFTAR TABEL ........................................................................................ xii
DAFTAR LAMPIRAN ................................................................................ xiii

BAB I PENDAHULUAN ........................................................................... 1
  1.1 Latar Belakang ................................................................. 1
  1.2 Rumusan Masalah .......................................................... 3
  1.3 Tujuan ............................................................................... 3
  1.4 Manfaat ............................................................................ 3

BAB II TINJAUAN PUSTAKA ................................................................. 5
  2.1 Senyawa Fenol ................................................................. 5
  2.2 Degradasi Senyawa Fenol .............................................. 5
  2.3 Katalis ZnO/C ................................................................. 7
  2.4 Karbon Aktif ................................................................. 8

BAB III DASAR TEORI ........................................................................ 9
  3.1 Senyawa Fenol ................................................................. 9
  3.2 Katalis Heterogen .......................................................... 10
  3.3 Fotokatalisis ................................................................. 11
  3.4 *Surface Area Analyzer* ................................................ 12
  3.5 Spektrofotometer Sinar Tampak ................................. 13

BAB IV METODOLOGI PENELITIAN .................................................. 19
  4.1 Alat dan Bahan ................................................................. 19
    4.1.1 Alat ................................................................. 19
    4.1.2 Bahan ................................................................. 19
  4.2 Cara Kerja ................................................................. 19
4.2.1 Pembuatan Fotokatalis ZnO/C ................................. 19
4.2.2 Karakterisasi ZnO/C .................................................. 20
4.2.3 Pembuatan Kurva Baku Fenol ................................. 20
4.2.4 Uji Aktivitas ............................................................... 20
4.2.5 Variasi Berat ZnO/C dan Waktu Treatment .............. 20

BAB V HASIL DAN PEMBAHASAN ........................................ 22
5.1 Pembuatan Fotokatalis ZnO/C ....................................... 22
5.2 Karakterisasi ZnO/C dengan Surface Area Analyzer ........ 23
5.3 Penentuan Energi Celah Pita Fotokatalis ZnO/C ........... 26
5.4 Pembuatan Kurva Baku Fenol ....................................... 27
5.5 Uji Aktivitas Fotokatalis ZnO/C ..................................... 28
5.6 Variasi Berat ZnO/C dan Waktu Treatment ................. 33

BAB VI PENUTUP ................................................................. 34
6.1 Kesimpulan ................................................................. 34
6.2 Saran ................................................................. 34

DAFTAR PUSTAKA ............................................................... 36
LAMPIRAN ................................................................. 39
DAFTAR GAMBAR

Gambar 1. Mekanisme Degradasi Metilen Biru Menggunakan ZnO .......... 7
Gambar 2. Proses Fotokatalisis ................................................................. 11
Gambar 3. Skema Alat Surface Area Analyzer ........................................ 12
Gambar 4. Skema Alat Spektrofotometer UV-Vis Double Beam .......... 14
Gambar 5. Adsorpsi-Desorpsi pada Fotokatalis ZnO/C 2,5% ............... 24
Gambar 6. Spektra Diffuse Reflectance UV-Vis Material Fotokatalis ZnO/C 26
Gambar 7. Kurva Baku Fenol ................................................................. 28
Gambar 8. Reaktor Fotokatalis ................................................................. 30
Gambar 9. Skema Mekanisme Fotokatalis Senyawa Fenol ................. 30
Gambar 10. Hubungan Antara Variasi Berat ZnO/C terhadap Persentase Penurunan Konsentrasi ................................................................. 32
DAFTAR TABEL

Tabel 1. Data Rerata Jejari Pori, Luas Permukaan, dan Volume Pori dari ZnO/C .............................................................................................. 25

Tabel 2. Konsentrasi dan Absorbansi Larutan Fenol Standar.................... 27

Tabel 3. Hasil Uji Aktivitas Katalis ZnO/C 2,5 %......................................... 28
DAFTAR LAMPIRAN

Lampiran 1. Data Hasil Analisis Surface Area Analyzer Sampel Karbon Aktif ................................................................. 39
Lampiran 2. Data Hasil Analisis Surface Area Analyzer Sampel ZnO/C 2,5% ................................................................. 43
Lampiran 3. Perhitungan Kandungan Seng dalam ZnO/C 2,5% .................. 49
Lampiran 4. Hasil Analisis Larutan Fenol 20 ppm ................................ 50
Lampiran 5. Hasil Analisis Karbon Aktif dengan Penyinaran UV ........... 52
Lampiran 6. Hasil Analisis Fotokatalisis .................................................. 54
Lampiran 7. Data Hasil Analisis ZnO/C Tanpa Penyinaran ..................... 55
Lampiran 8. Data Hasil Pengukuran Larutan Standar Fenol ................... 58
Lampiran 9. Data Hasil Variasi Berat ZnO/C 0,01 gram ......................... 59
Lampiran 10. Data Hasil Variasi Berat ZnO/C 0,02 gram ....................... 60
Lampiran 11. Data Hasil Variasi Berat ZnO/C 0,03 gram ....................... 61
Lampiran 12. Lampiran 12: Absorbanvi Fenol Pada Variasi Berat ZnO/C Dan Waktu Treatment ............................................. 62
Lampiran 13. Persentase Penurunan Konsentrası .................................. 62
Lampiran 14. Konsentrası Larutan Fenol yang telah di Lakukan Treatment .. 62
Lampiran 15. Data Diffuse Reflectance UV-Vis Fotokatalis ZnO/C .......... 63