DAFTAR ISI

HALAMAN JUDUL .................................................................................................i
HALAMAN PENGSAHAN .................................................................................. ii
SURAT PERNYATAAN ...................................................................................... iii
PERNYATAAN PERSETUJUAN PUBLIKASI KARYA ILMIAH ....................... iv
PRAKATA ............................................................................................................. v
DAFTAR ISI ......................................................................................................... vii
DAFTAR SINGKATAN ......................................................................................... x
DAFTAR TABEL .................................................................................................. xi
DAFTAR GAMBAR ............................................................................................. xii
DAFTAR LAMPIRAN .......................................................................................... xiii
INTISARI ............................................................................................................ xiv

BAB I PENDAHULUAN ....................................................................................... 1
  1.1. Latar Belakang .......................................................................................... 1
  1.2. Rumusan Masalah ................................................................................... 3
  1.3. Tujuan Penelitian ..................................................................................... 4
    1.3.1. Tujuan Umum ................................................................................... 4
    1.3.2. Tujuan Khusus ................................................................................ 4
  1.4. Manfaat Penelitian ................................................................................. 4
    1.4.1. Manfaat Teoritis ............................................................................. 4
    1.4.2. Manfaat Praktis ............................................................................. 4

BAB II TINJAUAN PUSTAKA ............................................................................ 5
  2.1. Streptococcus pneumoniae ........................................................................ 5
    2.1.1. Definisi ............................................................................................ 5
    2.1.2. Klasifikasi ...................................................................................... 5
    2.1.3. Morfologi ....................................................................................... 6
    2.1.4. Faktor-faktor yang mempengaruhi pertumbuhan bakteri ............ 6
  2.2. Binahong (Anredera cordifolia (Ten.) Steenis) ........................................ 7
    2.2.1. Definisi ............................................................................................ 7
    2.2.2. Klasifikasi ...................................................................................... 9
2.2.3. Morfologi ........................................................................................................... 9
2.2.4. Kandungan Kimia ............................................................................................. 10
2.2.5. Khasiat ............................................................................................................... 11
2.3. Metode Ekstraksi .................................................................................................. 12
  2.3.1. Definisi Ekstrak ............................................................................................... 12
  2.3.2. Ekstraksi .......................................................................................................... 12
  2.3.3. Maserasi .......................................................................................................... 13
2.4. Hubungan antara ekstrak etil asetat daun binahong (*Anredera cordifolia* (Ten.) Steenis) dan bakteri *Streptococcus pneumoniae* .................. 14
2.5. Kerangka Teori ..................................................................................................... 15
2.6. Kerangka Konsep .................................................................................................. 15
2.7. Hipotesis ............................................................................................................... 16
BAB III METODE PENELITIAN ............................................................................. 17
  3.1. Jenis Penelitian dan Rancangan Penelitian .................................................................. 17
  3.2. Variabel dan Definisi Operasional .......................................................................... 17
    3.2.1. Variabel Penelitian ......................................................................................... 17
    3.2.2. Definisi Operasional ..................................................................................... 17
  3.3. Populasi dan sampel .............................................................................................. 18
    3.3.1. Populasi ......................................................................................................... 18
    3.3.2. Sampel .......................................................................................................... 18
  3.4. Instrumen dan Bahan Penelitian ........................................................................... 18
    3.4.1. Instrumen Penelitian ..................................................................................... 18
    3.4.2. Bahan Penelitian .......................................................................................... 19
  3.5. Cara Penelitian ...................................................................................................... 19
    3.5.1. Determinasi Tanaman ..................................................................................... 19
    3.5.2. Pembuatan serbuk simplisia ........................................................................... 19
    3.5.3. Penetapan kadar air ....................................................................................... 19
    3.5.4. Pembuatan ekstrak ........................................................................................ 20
    3.5.5. Skrining Fitokimia ......................................................................................... 20
    3.5.6. Pembuatan media ........................................................................................... 21
    3.5.7. Pembuatan konsentrasi ekstrak ...................................................................... 22
3.5.8. Identifikasi Streptococcus pneumoniae ..............................................23
3.5.9. Kultur Ekstrak ...................................................................................23
3.5.10. Pengujuan daya hambat .................................................................24
3.6. Alur Penelitian ......................................................................................25
3.7. Tempat dan Waktu Penelitian ..............................................................26
3.7.1. Tempat Penelitian ............................................................................26
3.7.2. Waktu Penelitian ............................................................................26
3.8. Analisis Hasil .........................................................................................26

BAB IV HASIL PENELITIAN DAN PEMBAHASAN ..............................................27
4.1. Hasil Penelitian .....................................................................................27
4.1.1. Determinasi tanaman ......................................................................27
4.1.2. Ekstraksi daun binahong .................................................................28
4.1.3. Kadar air simplisia dan ekstrak etil asetat daun binahong ..........28
4.1.4. Uji Skrining Fitokimia .................................................................28
4.1.5. Identifikasi bakteri Streptococcus pneumoniae ...............................29
4.1.6. Aktivitas penghambatan bakteri .....................................................29
4.1.7. Analisis data secara statistik ...........................................................30
4.2. Pembahasan ..........................................................................................33
4.2.1. Determinasi ....................................................................................33
4.2.2. Ekstraksi ........................................................................................33
4.2.3. Skrining Fitokimia .........................................................................36
4.2.4. Uji Aktivitas Antibakteri Ekstrak Etil Asetat Daun Binahong ..38
4.2.5. Analisis Uji Aktivitas Antibakteri Ekstrak Daun Binahong\n    terhadap S.pneumoniae .................................................................41

BAB V KESIMPULAN DAN SARAN .................................................................45
5.1. Kesimpulan ..........................................................................................45
5.2. Saran ....................................................................................................45

DAFTAR PUSTAKA .........................................................................................46

LAMPIRAN ......................................................................................................53
DAFTAR SINGKATAN

µm = mikro meter
µg = mikro gram
b/v = berat/volume
C = celcius
CFU = *Colonies Forming Unit*
cm = centi meter
EUCAST = *European Committee on Antimicrobial Susceptibility Testing*
FeCl₃ = Feri Klorida
FMIPA = Fakultas Matematika dan Ilmu Pengetahuan Alam
ISPA = Infeksi Saluran Pernafasan Akut
KBM = Kadar Bunuh Minimum
kg = kilo gram
m = meter
mL = mili liter
NaCl = Natrium Chlorida
NaOH = Natrium Hidroksida
pH = *Potencial of Hydrogen*
WHO = *World Health Organization*
DAFTAR TABEL

Tabel 4.1. Hasil pemeriksaan karakteristik ekstrak etanolik daun jati .................28
Tabel 4.2. Hasil Pengujian Kualitatif Analisis Fitokimia ................................28
Tabel 4.3. Hasil pengukuran diameter zona hambat bakteri S.pneumoniae ......29
Tabel 4.4. Hasil uji Shaphiro Wilk ................................................................31
Tabel 4.5. Hasil uji Lavene Test ..................................................................31
Tabel 4.6. Hasil uji One Way Anova ..............................................................31
Tabel 4.7. Analisis data uji aktivitas penghambatan bakteri .........................32
DAFTAR GAMBAR

Gambar 2.1. Bakteri Streptococcus pneumonia ................................................................. 5

Gambar 2.2. Daun Binahong ................................................................. 8

Gambar 2.3. Kerangka Teori ................................................................. 15

Gambar 2.4. Kerangka Konsep ................................................................. 15

Gambar 3.1. Skema Alur Penelitian ................................................................. 25

Gambar 4.1. Kurva hubungan antara kontrol positif dan konsentrasi ekstrak etanolik daun binahong dengan diameter zona hambat ................................. 30
DAFTAR LAMPIRAN

Lampiran 1. Hasil Determinasi Tanaman ..............................................................53
Lampiran 2. Perhitungan Randemen ..................................................................54
Lampiran 4. Hasil Skrining Fitokimia .................................................................56
Lampiran 5. Identifikasi bakteri Streptococcus pneumoniae .............................57
Lampiran 6. Hasil uji sterilitas ekstrak ...............................................................58
Lampiran 7. Gambar Hasil Penelitian ..................................................................59
Lampiran 8. Hasil Uji Statistik ...........................................................................60
Lampiran 9. Dokumentasi Penelitian .................................................................63
Lampiran 11. Surat Keterangan telah melakukan penelitian di Laboratorium Mikrobiologi FK UNDIP ..............................................................67
Lampiran 12. Surat Keterangan menggunakan strain bakteri Streptococcus pneumoniae .................................................................................68
Lampiran 13. Surat Ethical Clearance .................................................................69