

RINGKASAN

MuhamadZafriannasArrahim.UjiAktivitasAntibakteriEkstrakMetanol Buah Mangrove (*Sonneratia caseolaris*) terhadap Bakteri *Aeromonas hydrophila* secara *In Vitro*. Dosen Pembimbing Ir. Wahyu Tjahjaningsih, M.Si. dan Sapto Andriyono, S.Pi., MT.

Salahsatuanyakityangseringmenyerangikanairtawaradalahbakteri *Aeromonas*.Bakteri*Aeromonas*pertamakaliditemukandiIndonesiapadatahun 1980yangmenyerangpadabudidayaikan mas.Selamainipencegahanterhadap serangan bakteri pada umumnya dilakukan dengan pemberian antibiotik dan bahan kimia. Pemberian antibiotik dapat menyebabkan organisme patogen menjadi resisten sehinggapenggunaan antimikrobamenjadi tidak efektif.

Salahsatualternatifyangdapatdigunakanadalahdenganmenggunakan tumbuhan obat tradisional yang bersifat antibakteri. Tumbuhan tingkat tinggi sepertimangrove berpotensi sebagai sumber antibakteri.*Sonneratiacaseolaris* merupakan salah satu tumbuhan mangrove yang berpotensi sebagai bahan antibakterialami.Kemampuandayaantibakteri buah*S.caseolaris*diakibatkan karena adanyakandungan senyawametabolit sekunder yaitu flavonoid, tanin, steroid,alkaloid,saponin,danhidrokuinon.Salahsatusenyawayangdimiliki*S. caseolaris*adalah flavonoid.

Penelitian ini bertujuan untuk mengetahui potensi ekstrak metanol buah mangrove (*S. caseolaris*) sebagai antibakteri serta mengetahui konsentrasi minimumekstrakdalam menghambat pertumbuhan bakteri *A.hydrophilasecara invitro*.Metodepenelitianyang digunakandalampenelitianiniadalahmetode eksperimental dan dianalisis data secara deskriptif. Parameter utama pada penelitianiniadalahdiameterzonahambatbebasbakteri *A.hydrophila* yang terbentukpadaPetridisksertanilai*OpticalDensity*(OD)ekstrakbuahmangrove (*S. Caseolaris*) dibandingkan denganantibiotiktetrasiklin sebagai kontrolpositif.

Hasilpenelitiandiperolehekrakmetanolbuahmangrove(*S.caseolaris*) memilikipotensiantibakteriterhadapbakteri*A.hydrophila*.Padametodedifusi, terbentukterbentukdiameterzonahambatdisekitar*paperdisk*padakonsentrasi 10g/l yaitu0,275cm.Konsentrasi15g/lmemilikidiameter0,308cm,konsentrasi 20g/lmemilikidiameter0,383cm,dan25g/lmemilikidiameterlebihbaikyaitu

0,545cm. Kontrol negatif dengan DMSO 10% tidak menunjukkan adanya zona hambat. Perlakuan kontrol positif menunjukkan diameter paling luas diantara seluruh perlakuan yaitu sebesar 1,225cm.

Metode *Minimum Inhibitory Concentration* (MIC) menggunakan alat spektrofotometer dengan panjang gelombang 615 nm. Hasil penelitian menunjukkan bahwa ekstrak metanol buah mangrove (*S. caseolaris*) pada konsentrasi 10 g/l menunjukkan tingkat kekeruhan atau *Optical Density* (OD) tinggi yaitu 0,226 dibandingkan konsentrasi 15 g/l, 20 g/l, dan 25 g/l. Kontrol negatif memiliki tingkat kekeruhan atau *Optical Density* (OD) paling tinggi yaitu 0,966, sedangkan kontrol positif memiliki tingkat kekeruhan atau *Optical Density* (OD) paling rendah yaitu 0,129.



SUMMARY

Muhamad Zafrianas Arrahim. In Vitro Antibacterial Activity Test of Methanol Extract Mangrove's fruit (*Sonneratia caseolaris*) against *Aeromonashydrophila*. Academic Advisor Ir. Wahyu Tjahjaningsih, M.Si. and Sapto Andriyono, S.Pi., MT.

One disease that often affects freshwater fish is the bacterium *Aeromonas*. *Aeromonas* is a bacterium that was first discovered in Indonesia in 1980 that attacks on the cultivation of carp. During this precaution against bacterial attack is generally performed by administering antibiotics and chemicals. Giving antibiotics can cause pathogens to become resistant to antimicrobial use becomes ineffective.

One of the alternatives that can be used is traditional medicinal plants which is antibacterial. Higher plants such as mangrove potential as a source of antibacterial. *Sonneratia caseolaris* is one mangrove potential as a natural antibacterial ingredients. The ability of antibacterial power of fruit *S. caseolaris* caused because of the content of secondary metabolites are flavonoids, tannins, steroids, alkaloids, saponins, and hydroquinone. One of the compounds possessed *S. caseolaris* are flavonoids.

This study aims to determine the potential of mangrove fruit methanol extract (*S. caseolaris*) as antibacterial and determine the minimum concentration of the extract in inhibiting the growth of bacteria *A. hydrophila* in vitro. The method used in this study is an experimental method and the data were analyzed descriptively. The main parameters in this study is the diameter of inhibition zone free of bacteria *A. hydrophila* formed on a Petri disk and the value of Optical Density (OD) of mangrove fruit extract (*S. caseolaris*) compared with tetracycline antibiotics as a positive control.

The results obtained by mangrove fruit methanol extract (*S. caseolaris*) has antibacterial activity against bacteria *A. hydrophila*. In the diffusion method, formed from diameter inhibition zone around the paper disk at a concentration of 10 g/l is 0,275 cm. Concentration of 15 g/l has a diameter of 0,308 cm, a concentration of 20 g/l has a diameter of 0,383 cm, and 25 g/l have a better diameter is 0,545 cm. Negative control DMSO 10% did not show any inhibition

zone. Positive control treatments showed the most widely diameter among all treatment that amounted to 1.225 cm.

Method of Minimum Inhibitory Concentration (MIC) using a spectrophotometer with a wave length of 615 nm. Results showed that the methanol extract of mangrove fruit (*S. caseolaris*) at a concentration of 10 g/l showed turbidity levels or Optical Density (OD) is 0,226 higher than the concentration of 15 g/l, 20 g/l, and 25 g/l. Negative controls had levels of turbidity or optical density (OD) the highest of 0,966, while the positive control has a level of turbidity or Optical Density (OD) most low at 0,129.

