Uji Aktivitas Antibakteri Minyak Atsiri Kulit Kayu Masoyi (Cryptocarya massoy (Oken) Kosterm) dengan Metode Zona Hambat dan Konsentrasi Hambat Minimal = Antibacterial Activity Test of Cryptocarya massoy (Oken) Kosterm Barkâs Essential Oil with Inhibition Zone and Minimum Inhibitory Concentration Methods

Theresia P. G. Taa, author

Abstrak

Prevalensi kematian akibat diare pada bayi dan balita yang tinggi dapat disebabkan oleh Serratia marcescens. Prevalensi kematian akibat pneumonia pada bayi dan balita dapat disebabkan oleh Klebsiella pneumoniae. Prevalensi penyakit endokarditis infektif dapat disebabkan oleh Staphylococcus epidermidis. Namun, resistensi antibiotik menjadi masalah yang serius sehingga dilakukan eksplorasi pada tanaman masoyi yang merupakan tanaman endemik dari Papua. Minyak atsiri dari kulit kayu masoyi yang diperoleh dengan metode distilasi uap dilaporkan berpotensi menghambat pertumbuhan bakteri Streptococcus mutans, Escherichia coli, Pseudomonas aeruginosa, Salmonella typhimurium, Staphylococcus aureus dan Bacillus cereus. Pada penelitian ini, dilakukan determinasi tanaman, pengumpulan dan penyerbukan simplisia kulit kayu masoyi, uji mikroskopik, ekstraksi minyak atsiri dengan metode distilasi air, uji fitokimia golongan terpenoid dan uji aktivitas antibakteri terhadap Klebsiella pneumoniae, Serratia marcescens dan Staphylococcus epidermidis. Minyak atsiri dibuat ke beberapa konsentrasi dengan melarutkan minyak atsiri dengan DMSO dan PEG 400. Uji aktivitas antibakteri menggunakan metode zona hambat (metode difusi cakram) dan metode konsentrasi hambat minimal (makrodilusi) terhadap Klebsiela pneumoniae, Serratia marcescens dan Staphylococcus epidermidis. Hasil metode zona hambat menunjukkan minyak atsiri dengan pelarut DMSO terhadap K.pneumoniae berpotensi lemah (1-1,25 mm) sedangkan, terhadap S.marcescens (10,625-13,25 mm) dan S.epidermidis (11,75- 14,5 mm) berpotensi kuat. Minyak atsiri dengan pelarut PEG 400 terhadap K.pneumoniae (5-9,75 mm), S.marcescens (5,5-8,25 mm) dan S.epidermidis (4,625-7,5 mm) berpotensi sedang. Hasil metode makrodilusi menunjukkan nilai KHM minyak atsiri Cryptocarya massoy (Oken) Kosterm terhadap K.pneumoniae = 125 µg/mL, S.marcescens = 62,5 µg/mL dan S.epidermidis = 31,25 - 15,625 µg/mL.

.....The high prevalence of death from diarrhea in infants and toddlers can be caused by Serratia marcescens. The prevalence of death from pneumonia in infants and toddlers can be caused by Klebsiella pneumoniae. The prevalence of infective endocarditis can be caused by Staphylococcus epidermidis. However, antibiotic resistance is a serious problem, so an exploration of the masoyi plant, which is an endemic plant from Papua, was carried out. Essential oil from masoyi bark obtained by steam distillation method has the potential to inhibit the growth of Streptococcus mutans, Escherichia coli, Pseudomonas aeruginosa, Salmonella typhimurium, Staphylococcus aureus and Bacillus cereus as reported. In this study, plant determination, collection and pollination of masoyi bark simplicia, microscopic test, extraction of essential oils by water distillation method, phytochemical test of terpenoids and antibacterial activity tests against Klebsiella pneumoniae, Serratia marcescens and Staphylococcus epidermidis were carried out. The essential oil was made into several concentrations by dissolving the essential oil with DMSO and PEG 400. The antibacterial activity was tested using the zone of inhibition method (disk diffusion method) and the minimal

inhibitory concentration method (macrodilution) against Klebsiela pneumoniae, Serratia marcescens and Staphylococcus epidermidis. The results of the inhibition zone method showed that essential oils with DMSO as solvent were potentially weak against K.pneumoniae (1-1.25 mm) while against S.marcescens (10.625-13.25 mm) and S.epidermidis (11.75-14.5 mm). mm) potentially strong. Essential oil with solvent PEG 400 against K. pneumoniae (5-9.75 mm), S. marcescens (5.5-8.25 mm) and S. epidermidis (4.625-7.5 mm) has moderate potential. The results of the macrodilution method showed the MIC value of Cryptocarya massoy (Oken) Kosterm essential oil against K.pneumoniae = 125 g/mL, S.marcescens = 62.5 g/mL and S.epidermidis = 31.25 - 15,625 g/mL.