

BAB V

KESIMPULAN DAN SARAN

5.1 Kesimpulan

Dari penelitian ini, dapat disimpulkan bahwa:

1. Yield ekstrak terbesar diperoleh sebesar 48,85% dengan metode ekstraksi konvensional pelarut methanol, 25% dengan pelarut heksana, 20,19% dengan metode subkritis air, dan 1,22% dengan metode superkritis CO₂.
2. Metode ekstraksi dengan *green solvent* berupa subkritis air dan superkritis CO₂ memiliki efektivitas sebagai antibakteri dalam menghambat pertumbuhan bakteri *Staphylococcus aureus* dan *Escherichia coli*, sedangkan metode konvensional dengan Soxhlet baik pelarut heksana, maupun methanol tidak menunjukkan adanya kemampuan antibakteri.
3. Ekstrak biji jeruk dengan ekstraksi subkritis air memiliki zona hambat terbesar pada *Staphylococcus aureus* dan *Escherichia coli* sebesar 24,25 mm dan 16,3 mm karena terdeteksi mengandung Pyrrolo[1,2-a]pyrazine-1,4-dione, hexahydro-3-(2-methylpropyl)- (5,8442%) sebagai senyawa antibakteri dan superkritis CO₂, memiliki zona sebesar 17,3 mm dan 12,65 mm karena terdeteksi mengandung Benzoic acid, 2-hydroxy-, phenylmethyl ester (2,0936%) sebagai senyawa antibakteri. Sedangkan untuk ekstrak dengan metode konvensional senyawa antibakteri ada dalam jumlah yang kecil dan tidak efektif dalam membentuk zona hambat
4. Senyawa volatil lebih banyak diekstrak pada pelarut non-polar (superkritis CO₂) dibandingkan dengan pelarut polar (subkritis air). Dengan senyawa terbanyak pada pelarut non-polar memiliki gugus fungsi ester dengan senyawa metabolit sekunder berupa terpena/terpenoid dan pada pelarut polar memiliki gugus fungsi keton dengan senyawa metabolit sekunder berupa alkaloid dan asam amino polar.

5.2 Saran

Saran yang dapat diberikan untuk penelitian selanjutnya adalah

1. Melakukan variasi lebih beragam terhadap metode ekstraksi serta jenis pelarut yang digunakan.

2. Melakukan variasi pada kondisi operasi dari metode ekstraksi konvensional, superkritis CO₂, dan subkritis air untuk mengetahui apakah ada pengaruh dari tekanan, temperatur, waktu ekstraksi terhadap efektivitas ekstrak sebagai antibakteri.
3. Meningkatkan *moisture content* dari simplisia untuk mengetahui pengaruhnya terhadap yield ekstrak.

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