BAB V
KESIMPULAN DAN SARAN

5.1 Kesimpulan

Kesimpulan dari penelitian ini adalah sebagai berikut:

1. C-PC tidak terekstrak dengan baik dengan metode SFE, sehingga metode SFE belum dapat menjadi alternatif dari metode maserasi pada kondisi operasi penelitian ini.
2. Penggunaan *co-solvent* pada metode SFE meningkatkan perolehan dan aktivitas antioksidan ekstrak.
3. Titik optimum tekanan operasi metode SFE terletak pada 25 MPa, di mana akan didapatkan perolehan dan aktivitas antioksidan ekstrak tertinggi.
4. Semakin tinggi laju alir CO_2, maka perolehan dan aktivitas antioksidan ekstrak pada metode SFE akan meningkat.
5. Kondisi operasi terbaik untuk mendapatkan perolehan (3,2832 %) dan aktivitas antioksidan ekstrak tertinggi (IC_{50} 658,7925 ppm) adalah dengan penggunaan *co-solvent* etanol 10 %-v/v CO_2, tekanan 25 MPa, dan laju alir CO_2 12 mL/min.
6. Tahap *pre-treatment* ultrasonikasi dapat meningkatkan perolehan C-PC, serta perolehan dan aktivitas antioksidan ekstrak
7. Metode maserasi memberikan perolehan C-PC (47,6280 %) dan aktivitas antioksidan ekstrak (IC_{50} 85,9929 ppm) yang lebih tinggi dibandingkan metode SFE.

5.2 Saran

Saran dari penelitian ini adalah sebagai berikut:

1. Perlu digunakan *co-solvent* etanol p.a. (100 %) atau *buffer* untuk menjaga pH dari pelarut agar tidak terjadi degradasi C-PC.
2. *Pre-treatment* ultrasonikasi dapat dilakukan dengan frekuensi, temperatur, dan intensitas yang lebih tinggi.
3. Waktu operasi ultrasonikasi dapat dibagi ke dalam beberapa siklus dengan waktu yang pendek, sehingga dapat memberikan jeda waktu untuk pendinginan agar tidak terjadi degradasi protein (antioksidan).
4. Ultrasonikasi juga dapat dilakukan dengan jenis alat *ultrasonic probe* yang intensitas ultrasonikasinya lebih tinggi dan mampu memberikan perolehan ekstraksi padat-cair yang lebih tinggi dibandingkan *ultrasonic bath*.

5. Pelarut yang digunakan pada tahap ultrasonikasi dapat disesuaikan dengan komponen yang akan diekstrak dan menghindari penggunaan alkohol karena dapat menyebabkan denaturasi protein dalam jumlah banyak, seperti *buffer* sodium fosfat pH 7 untuk C-PC.

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