

Intisari

PENGARUH KONSENTRASI ENZIM PAPAIN TERHADAP AKTIVITAS ANTIOKSIDAN HIDROLISAT PROTEIN *Arthrospira platensis* HASIL SAMPING EKSTRAKSI FUKOSIANIN

Hasil samping ekstraksi maserasi dari *Spirulina* masih mengandung protein dan mempunyai potensi aktivitas antioksidan dengan cara menghidrolisisnya. Penelitian ini bertujuan untuk mengetahui pengaruh konsentrasi papain Paya terhadap aktivitas antioksidan hidrolisat protein hasil samping ekstraksi *Spirulina* (HPHSES). Hasil samping ekstraksi *Spirulina* dihidrolisis menggunakan papain dengan konsentrasi 4%, 5%, dan 6% dengan 0% sebagai kontrol pada suhu 55 °C dan pH 7 selama 96 jam. Hidrolisat disentrifus pada 4500 rpm selama 30 menit, kemudian supernatan dioven 80 °C selama 48 jam. Pengujian hidrolisat meliputi derajat hidrolisis (DH), kadar protein terlarut, dan pengujian aktivitas antioksidan dengan metode DPPH dan ABTS. Aktivitas antioksidan HPHSES paling optimal menggunakan konsentrasi enzim papain 5% dengan DH 64,40%, protein terlarut $122,09 \pm 31,11$ mg/ml, aktivitas antioksidan DPPH dan ABTS berturut 89,11 \pm 0,38% dan 206,98 \pm 9,69 μ g/g.

Kata kunci: hidrolisat protein, ekstraksi *Spirulina*, antioksidan, enzim papain.

Abstract

EFFECT OF PAPAIN CONCENTRATION ON THE ANTIOXIDANT ACTIVITY OF PROTEIN HYDROLYSATE FROM *Arthrospira platensis* FUCOCYANIN EXTRACTION BY-PRODUCT

The by-product of *Spirulina* extraction still contains protein and has potent antioxidant activity by hydrolyzing it. This study aimed to determine the effect of different concentrations of papain “Paya” on the antioxidant activity of *Spirulina* by-products protein hydrolysate. The by-products of *Spirulina* extraction were hydrolyzed using papain concentrations of 4%, 5%, and 6%, with 0% as a control, at 55 °C and pH 7 for 96 hours. The hydrolysates were centrifuged at 4500 rpm for 30 minutes, after that, supernatant was dried in an oven at 80 °C for 48 hours. The hydrolysate test included the degree of hydrolysis (DH), dissolved protein content, and antioxidant activity testing using the DPPH and ABTS methods. The optimal antioxidant activity of DPPH and ABTS was found at a concentration of 5%, with DH 64,40%, dissolved protein 122,09 ± 31,11 mg/ml, antioxidant activities of DPPH and ABTS were 89,11 ± 0,38% and 206,98 ± 9,69 µg/g, respectively.

Keywords: protein hydrolysate, *Spirulina* extraction, antioxidant, papain enzyme.