INTISARI

PENGARUH LAMA FERMENTASI PADAT MENGGUNAKAN BAKTERI PROTEOLITIK TERHADAP AKTIVITAS ANTIOKSIDAN *Arthrospira platensis*

Penelitian ini bertujuan untuk mengetahui pengaruh lama waktu fermentasi terhadap aktivitas antioksidan *Arthrospira platensis* dengan metode *Solid State Fermentation* (SSF). Perlakuan pada penelitian ini yaitu 24 jam (H24), 48 Jam (H48), 72 jam (H72), 96 Jam (H96), dengan 0 Jam (H0) sebagai kontrol. Hasil fermentasi diuji *total plate count*, pH, derajat hidrolisis, fitokimia, serta aktivitas antioksidan dengan metode FRAP dan DPPH. Lama waktu fermentasi berpengaruh terhadap *total plate count*, pH, derajat hidrolisis, dan aktivitas antioksidan dengan metode FRAP dan DPPH. Lama waktu fermentasi optimum ditunjukkan pada perlakuan H48 dengan aktivitas antioksidan metode DPPH IC_{50} 2207,48 ppm dan metode FRAP 37,2 μmol Fe^{2+}/mL. Aktivitas antioksidan mengalami peningkatan 63,64% dan 101,5% berdasarkan DPPH dan FRAP. Fermentasi selama 48 jam memberikan derajat hidrolisis 57,29%, dan memunculkan senyawa steroid, tanin, saponin, dan fenolik. Hasil aktivitas antioksidan masih tergolong sangat lemah (>200 ppm), namun fermentasi selama 48 jam memberikan peningkatan yang signifikan terhadap aktivitas antioksidan *Arthrospira platensis.*

Kata kunci : *Arthrospira platensis*, antioksidan, lama waktu fermentasi, *solid state fermentation*

ABSTRACT

THE EFFECT OF SOLID STATE FERMENTATION DURATION WITH PROTEOLITIC BACTERIA ON THE ANTIOXIDANT ACTIVITY OF *Arthrospira platensis*

This study aims to assess the effect of fermentation time on the antioxidant activity of *Arthrospira platensis* using the Solid State Fermentation (SSF) method. The treatments in this study were 24 hours (H24), 48 hours (H48), 72 hours (H72), 96 hours (H96), with 0 hours (H0) as a control. The fermentation results were tested for total plate count, pH, degree of hydrolysis, phytochemicals, and antioxidant activity using the FRAP and DPPH methods. The length of fermentation affects the total plate count, pH, degree of hydrolysis, and antioxidant activity using the FRAP and DPPH methods. The optimum fermentation time was shown in the H48 treatment with antioxidant activity using the DPPH IC_{50} method of 2207.48 ppm and the FRAP method of 37.2 µmol Fe^{2+}/mL. Antioxidant activity increased by 63.64% and 101.5% based on DPPH and FRAP. Fermentation for 48 hours resulted in a hydrolysis rate of 57.29%, producing steroids, tannins, saponins, and phenolic compounds. The antioxidant activity was still very weak (>200 ppm), but 48 hours of fermentation significantly increased the antioxidant activity of *Arthrospira platensis*.

Keywords: *Arthrospira platensis*, antioxidant, fermentation time, solid state fermentation