

## Intisari

### PENGARUH PENAMBAHAN ISOLAT PROTEIN DARI HASIL SAMPUNG EKSTRAKSI FIKOSIANIN SPIRULINA (*Arthrospira platensis*) TERHADAP MUTU SURIMI LELE

*Arthrospira platensis* memiliki banyak manfaat diantaranya sebagai sumber fikosianin. Hasil sampung dari ekstraksi fikosianin telah dimanfaatkan menjadi isolat protein dengan *Least Gelation Concentration* (LGC) sebesar 2% sehingga isolat protein spirulina memiliki kemampuan meningkatkan kekuatan gel yang baik. Penelitian ini bertujuan untuk mengetahui konsentrasi terbaik dari penambahan isolat protein dari hasil sampung ekstraksi fikosianin *Arthrospira platensis* terhadap mutu surimi berbahan dasar lele dumbo. Rancangan percobaan yang digunakan adalah rancangan acak lengkap (RAL) dengan perlakuan penambahan isolat protein dengan konsentrasi 0% (p0), 2% (p1), 4% (p2), 6% (p3), 8% (p4). Karakteristik surimi diuji melalui uji kadar air, uji kadar lemak, uji kadar abu, uji kadar protein, uji derajat hidrolisis, uji nilai pH, uji lipat, uji derajat putih (*whiteness*), uji *Water Holding Capacity* (WHC), dan uji kekuatan gel. Berdasarkan uji anova memberikan pengaruh nyata ( $P < 0,05$ ) untuk nilai kadar lemak berkisar antara  $3,30\% \pm 0,04$  sampai  $7,75\% \pm 0,10$ , nilai kadar protein berkisar antara  $11,19\% \pm 0,06$  sampai  $13,52\% \pm 0,05$ , nilai kadar abu berkisar antara  $2,84\% \pm 0,05$  sampai  $3,94\% \pm 0,05$ , nilai derajat hidrolisis berkisar antara  $6,43\% \pm 0,06$  sampai  $13,14\% \pm 0,71$ , nilai uji lipat berkisar antara  $2,56 \pm 0,19$  sampai  $3,67 \pm 0,33$ , nilai derajat putih (*whiteness*) berkisar antara  $40,62\% \pm 0,05$  sampai  $73,19\% \pm 0,15$ . Namun tidak memberikan pengaruh nyata ( $P > 0,05$ ) terhadap kadar air, nilai pH, nilai *Water Holding Capacity* (WHC), dan kekuatan gel. Berdasarkan hasil konsentrasi penambahan terbaik 8% (p4) mampu meningkatkan kualitas gel surimi ikan lele dengan karakteristik nilai kadar air  $43,52\% \pm 6,54$ ; nilai kadar lemak  $3,30\% \pm 0,04$ ; nilai kadar protein,  $13,52\% \pm 0,05$ ; nilai kadar abu  $3,94\% \pm 0,05$ ; nilai pH  $6,78 \pm 0,30$ ; nilai derajat hidrolisis  $6,43\% \pm 0,06$ ; nilai pH  $3,67 \pm 0,03$ ; nilai derajat putih  $40,62\% \pm 0,05$ ; nilai WHC  $81,22\% \pm 1,21$ ; dan kekuatan gel  $603,54 \text{ g/cm}^2 \pm 0,04$ .

**Kata Kunci:** spirulina, isolat protein, surimi, lele, mutu, kekuatan gel

## Abstract

### THE EFFECT OF ADDING PROTEIN ISOLATE FROM THE BY-PRODUCT OF PHYCOCYANIN EXTRACTION OF SPIRULINA (*Arthrospira platensis*) ON THE QUALITY OF SURIMI CATFISH

*Arthrospira platensis* has many benefits including as a source of phycocyanin. The by-product of phycocyanin extract has been utilized as a protein isolate with Least Gelation Concentration (LGC) of 2% so that spirulina protein isolate has the ability to increase good gel strength. This study aims to determine the best concentration of adding protein isolate from the by-product of *Arthrospira platensis* phycocyanin extract to the quality of surimi made from African catfish. The experimental design used was a completely randomized design (CRD) with the treatment of adding protein isolate with a concentration of 0% (p0), 2% (p1), 4% (p2), 6% (p3), 8% (p4). The characteristics of surimi were tested through water content test, fat content test, ash content test, protein content test, hydrolysis degree test, pH value test, folding test, whiteness test, Water Holding Capacity (WHC) test, and gel strength test. Based on the ANOVA test, it gave a significant effect ( $P < 0.05$ ) for the fat content values ranging from  $3.30\% \pm 0.04$  to  $7.75\% \pm 0.10$ , the protein content values ranging from  $11.19\% \pm 0.06$  to  $13.52\% \pm 0.05$ , the ash content values ranging from  $2.84\% \pm 0.05$  to  $3.94\% \pm 0.05$ , the hydrolysis degree values ranging from  $6.43\% \pm 0.06$  to  $13.14\% \pm 0.71$ , the folding test values ranging from  $2.56 \pm 0.19$  to  $3.67 \pm 0.33$ , the whiteness value ranging from  $40.62\% \pm 0.05$  to  $73.19\% \pm 0.15$ . However, it did not give a significant effect ( $P > 0.05$ ) on water content, pH value, Water Holding Capacity (WHC) value, and gel strength. Based on the results of the best addition concentration of 8% (p4) was able to improve the quality of catfish surimi gel with the characteristics of water content value of  $43.52\% \pm 6.54$ ; fat content value of  $3.30\% \pm 0.04$ ; protein content value,  $13.52\% \pm 0.05$ ; ash content value of  $3.94\% \pm 0.05$ ; pH value of  $6.78 \pm 0.30$ ; hydrolysis degree value of  $6.43\% \pm 0.06$ ; pH value of  $3.67 \pm 0.03$ ; whiteness value of  $40.62\% \pm 0.05$ ; WHC value of  $81.22\% \pm 1.21$ ; and gel strength of  $603.54 \text{ g/cm}^2 \pm 0.04$ .

**Keywords:** spirulina, isolate protein, surimi, catfish, quality, gel strength