

## Intisari

### Pengaruh Suhu dan Lama Penyimpanan terhadap Kualitas Mikroemulsi Asam Lemak *Ulva lactuca*

Penelitian ini bertujuan untuk mengetahui konsentrasi asam lemak *Ulva lactuca* pada mikroemulsi yang paling stabil selama penyimpanan dan mengetahui pengaruh suhu dan lama penyimpanan terhadap kualitas mikroemulsi asam lemak *Ulva lactuca*. Sampel makroalga *U. lactuca* diambil dari daerah Pantai Trenggole, Gunungkidul, pada November 2019. Tahap-tahap dalam penelitian ini yaitu ekstraksi asam lemak *U. lactuca*, pembuatan mikroemulsi asam lemak *U. lactuca*, dan pengujian kualitas mikroemulsi asam lemak selama penyimpanan. Ekstraksi asam lemak *U. lactuca* yang dilakukan menggunakan pelarut heksana dan etanol dengan rasio 1: 19 (v/v) pada suhu 70 derajat celcius selama 3 jam. Pembuatan mikroemulsi asam lemak *U. lactuca* menggunakan 3 jenis surfaktan yang berbeda, yaitu Tween 80, Span 80, dan Tween 20 dengan rasio 87,0: 5,5: 7,5 (v/v) serta kadar air sebesar 80 persen dan konsentrasi asam lemak *U. lactuca* sebesar 0, 200, dan 250 ppm. Mikroemulsi asam lemak *U. lactuca* disimpan pada suhu 10±1, 30±1, dan 50±2 derajat celcius selama 20 hari. Pengujian kualitas mikroemulsi asam lemak terdiri dari indeks turbiditas, bilangan peroksida, dan bilangan TBA yang dilakukan pada penyimpanan hari ke-0, 4, 8, 12, 16, dan 20. Hasil penelitian menunjukkan bahwa konsentrasi asam lemak *U. lactuca* pada mikroemulsi yang paling stabil selama penyimpanan yaitu 200 ppm. Perlakuan 3 variasi suhu dan lama penyimpanan berpengaruh nyata terhadap indeks turbiditas mikroemulsi asam lemak pada tiap konsentrasi asam lemak *U. lactuca*, namun tidak berpengaruh nyata terhadap bilangan peroksida dan TBA mikroemulsi asam lemak *U. lactuca* sampai dengan penyimpanan 20 hari.

Kata kunci: asam lemak, kualitas, mikroemulsi, penyimpanan, *U. lactuca*

## Abstract

### Effect of Temperature and Storage Time on Quality of *Ulva lactuca* Fatty Acid Microemulsion

This study aims to determine the most stable concentration of *Ulva lactuca* fatty acid in microemulsion during storage and to determine effect of temperature and storage time on quality of *U. lactuca* fatty acid microemulsion. *U. lactuca* macroalgae samples were taken from Pantai Trenggole, Gunungkidul, on November 2019. The stages in this study were extraction of *Ulva lactuca* fatty acid, production of *U. lactuca* fatty acid microemulsion, and quality examination of fatty acid microemulsion during storage. Extraction of *U. lactuca* fatty acid was carried out using hexane and ethanol solvents with ratio of 1: 19 (v/v) at 70 degrees for 3 hours. Production of *U. lactuca* fatty acid microemulsion was done by using 3 different types of surfactants Tween 80, Span 80, and Tween 20 with ratio of 87,0: 5,5: 7,5 (v/v) with 80 percent of water content and 0, 200, and 250 ppm of *U. lactuca* fatty acid concentration. *U. lactuca* fatty acid microemulsions were stored at  $10\pm 1$ ,  $30\pm 1$ , and  $50\pm 2$  degrees for 20 days. Quality examination of fatty acid microemulsions consisted of turbidity index, peroxide and TBA value which carried out on 0, 4, 8, 12, 16, and 20 of storage days. The results showed the most stable concentration of *U. lactuca* fatty acid in microemulsion during storage is 200 ppm. Treatment of 3 variation temperatures and storage time had significant effect on turbidity index of fatty acid microemulsion at each *U. lactuca* fatty acid concentration, but had no significant effect on peroxide and TBA value of *U. lactuca* fatty acid microemulsion up to the 20 days of storage.

Keywords: fatty acid, microemulsion, quality, storage, *U. lactuca*