

ABSTRAK

Badrianti, NIM: 16010108036, Pembuatan *Virgin Coconut Oil* (VCO) Secara Fermentasi Menggunakan Air Kelapa Sebagai Bahan Ajar Biologi Materi Bioteknologi Kelas XII SMA Negeri 1 Oheo, Dibimbing Oleh: Ibu Rosmini, S.Si., M.Pd.

Penelitian ini bertujuan untuk (1) mengetahui perlakuan fermentasi *Virgin Coconut Oil* (VCO) menggunakan air kelapa yang dibiarkan secara terbuka selama 1 jam, 2 jam, dan 3 jam, (2) mengetahui mutu *Virgin Coconut Oil* (VCO) yang dihasilkan secara fermentasi menggunakan air kelapa yang dibiarkan secara terbuka selama 1 jam, 2 jam dan 3 jam, (3) mengetahui kelayakan modul pembelajaran untuk dipakai sebagai bahan belajar siswa, (4) mengetahui keefektifan modul pembelajaran untuk dipakai sebagai bahan belajar siswa. Jenis penelitian yang digunakan penelitian eksperimen dengan metode oven analisis gravimetri dan titrimetri dan RND (*Research and Development*). Hasil penelitian menunjukkan (1) volume minyak terbanyak pada pengulangan (PII) yaitu 320 mL dengan fermentasi air kelapa selama 3 jam. Sedangkan Rata-rata rendemen *Virgin Coconut Oil* (VCO) yang dihasilkan dari proses fermentasi air kelapa berkisar antara 0,22-0,32%, dengan rendemen *Virgin Coconut Oil* (VCO) terbanyak pada PII yaitu 0,32%; (2) analisis kadar air *Virgin coconut Oil* berkisar antara 0,24-0,29%, hal ini tidak memenuhi standar mutu. Analisis asam lemak bebas *Virgin coconut Oil* berkisar antara 0,13%-0,18%, memenuhi standar mutu dan uji organoleptik *Virgin Coconut Oil* yang didapatkan berwarna bening, berbau khas minyak kelapa, dan tidak berasa; (3) Perangkat (modul) divalidasi oleh para pakar dan direvisi sampai memenuhi kriteria valid. Hasil validasi menunjukkan nilai 92 % yang berarti sangat baik dan layak untuk digunakan; (4) nilai ketuntasan dari 54% menjadi 92% dengan peningkatan ketuntasan hasil belajar 5% dan mencapai nilai KKM. Sehingga modul pembelajaran ini efektif digunakan oleh siswa dalam pembelajaran.

Kata Kunci: Kelapa, Mutu *Virgin Coconut Oil*, kelayakan modul dan keefektifan modul.

ABSTRACT

Badrianti, NIM: 16010108036, Making Fermented *Virgin Coconut Oil* (VCO) Using Coconut Water as Biology Teaching Material for Biotechnology Class XII Oheo 1 High School, Supervised by Ms. Rosmini, S.Si., M.Pd.

This study aims to (1) determine the fermentation treatment of *Virgin Coconut Oil* (VCO) using coconut water which is left open for 1 hour, 2 hours, and 3 hours, (2) determine the quality of *Virgin Coconut Oil* (VCO) produced by fermentation using coconut water which is left open for 1 hour, 2 hours and 3 hours, (3) knowing the feasibility of the learning module to be used as student learning material, (4) knowing the effectiveness of the learning module to be used as student learning material. This type of research is used in experimental research with the oven analysis method of gravimetry and titrimetry and RND (*Research and Development*). The results showed (1) the highest volume of oil on repetition (PII) was 320 mL with fermented coconut water for 3 hours. While the average yield of *Virgin Coconut Oil* (VCO) produced from the coconut water fermentation process ranged from 0.22 to 0.32%, with the highest yield of *Virgin Coconut Oil* (VCO) at PII which was 0.32%; (2) analysis of *Virgin coconut Oil* moisture content ranges from 0.24 to 0.29%, this does not meet quality standards. Analysis of *virgin coconut oil* free fatty acids ranges from 0.13% -0.18%, meets the quality standards and organoleptic tests of *Virgin Coconut Oil* which are obtained in a clear, distinctive smell of coconut oil, and tasteless; (3) Devices (modules) are validated by experts and revised until they meet valid criteria. The validation results show a value of 92% which means that it is very good and worthy of use; (4) completeness value from 54% to 92% with an increase in mastery learning outcomes 5% and achieve KKM value. So this learning module is effectively used by students in learning.

Keywords: Coconut, *Virgin Coconut Oil* Quality, module suitability, and module effectiveness.