

ABSTRAK

UJI KUALITAS MINYAK GORENG YANG TELAH DIGUNAKAN BERULANG-ULANG DENGAN MENGGUNAKAN SENSOR ULTRASONIK JSN SR04T

Oleh

ESTER LUSIANA SIREGAR

Telah dilakukan penelitian uji kualitas minyak goreng yang telah digunakan berulang-ulang dengan menggunakan sensor ultrasonik JSN SR04T. Tujuan penelitian untuk menguji kualitas minyak goreng yang telah digunakan berulang-ulang dengan menggunakan sensor ultrasonik JSN SR04T. Minyak goreng merupakan bahan pangan penting yang sering digunakan berulang kali dalam proses memasak, yang dapat menyebabkan penurunan kualitas minyak dan berpotensi membahayakan kesehatan. Sensor ultrasonik JSN SR04T digunakan untuk mendeteksi perubahan intensitas serapan yang dapat menunjukkan tingkat kerusakan minyak goreng. Pengujian dilakukan dengan menggunakan beberapa jenis minyak goreng, termasuk minyak kelapa, minyak kelapa sawit, minyak jagung, dan minyak bunga matahari yang telah diberikan perlakuan hingga perlakuan ketiga. Hasil penelitian menunjukkan bahwa penggunaan sensor ultrasonik mampu mendeteksi perubahan spektrum dan intensitas serapan minyak goreng. Analisis spektrum frekuensi dengan metode *Fast Fourier Transform* (FFT) menunjukkan korelasi perubahan intensitas serapan sinyal ultrasonik, pada penelitian ini menunjukkan minyak jagung memiliki intensitas serapan paling banyak dari minyak goreng yang lainnya dan menghasilkan spektrum yang kecil setelah mendapatkan perlakuan ketiga.

Kata Kunci : *Kualitas, Minyak, Sensor Ultrasonik, FFT.*

ABSTRACT

TEST THE QUALITY OF COOKING OIL THAT HAS BEEN USED REPEATEDLY USING THE JSN SR04T ULTRASONIC SENSOR

By

ESTER LUSIANA SIREGAR

A study has been conducted on the Quality Test of cooking oil that has been used repeatedly using the JSN SR04T ultrasonic sensor. The purpose of the study was to test the quality of cooking oil that has been used repeatedly using the JSN SR04T ultrasonic sensor. Cooking oil is an important food ingredient that is often used repeatedly in the cooking process, which can lead to a decrease in oil quality and potentially harm health. The JSN SR04T ultrasonic sensor is used to detect changes in absorption intensity that can indicate the degree of damage of cooking oil. The test was carried out using several types of cooking oil, including coconut oil, palm oil, corn oil, and sunflower oil that had been treated until the third treatment. The results showed that the use of ultrasonic sensors was able to detect changes in the spectrum and intensity of cooking oil absorption. Frequency spectrum analysis with the Fast Fourier Transform (FFT) method showed a correlation of changes in the intensity of ultrasonic signal absorption, in this study showed that corn oil had the most absorption intensity of other cooking oils and produced a small spectrum after receiving the third treatment.

Keywords: Quality, Oil, Ultrasonic Sensor, FFT.