LIMBAH CAIR TAHU (LCT) SEBAGAI SUMBER PROTEIN PADA PEMBUATAN *EDIBLE FILM* UNTUK PELAPIS TOMAT CERI (*Solanum lycopersicum* var. *cerasiforme*)

TESIS

Diajukan untuk memenuhi sebagian syarat dalam memperoleh gelar Magister Sains
Program Studi Kimia

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PROGRAM STUDI KIMIA
FAKULTAS PENDIDIKAN MATEMATIKA DAN ILMU PENGETAHUAN ALAM
UNIVERSITAS PENDIDIKAN INDONESIA
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Oleh
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S.Si. Universitas Pendidikan Indonesia, 2024

Sebuah tesis yang diajukan untuk memenuhi salah satu syarat memperoleh gelar Magister Sains (M.Si.) pada Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam

LEMBAR PENGESAHAN

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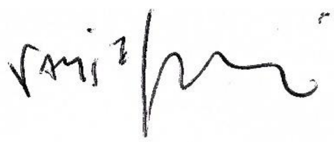

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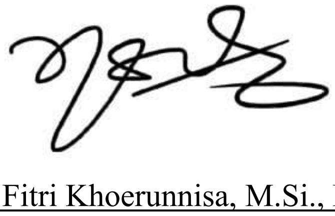

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ABSTRAK

Limbah cair tahu (LCT) merupakan produk samping dari produksi tahu yang masih memiliki kandungan protein cukup tinggi dan dianggap sebagai suatu polutan. LCT akan semakin banyak dihasilkan seiring adanya produksi tahu, untuk mengatasi hal tersebut, LCT dapat dimanfaatkan sebagai sumber protein dalam pembuatan *edible film*. Penelitian ini bertujuan untuk memanfaatkan protein LCT dalam pembuatan *edible film* dan aplikasinya sebagai pelapis tomat ceri (*Solanum lycopersicum* var. *cerasiforme*). Metode penelitian meliputi pembuatan dan karakterisasi berbagai varian *edible film* serta aplikasi pelapisan pada tomat ceri. Hasil penelitian menunjukkan arakteristik *edible film* meliputi warna serta opasitas dan transmitansi cahaya terbaik ditemukan pada varian E. Rasio pembengkakan, sudut kontak air, permeabilitas uap air dan oksigen, stabilitas termal terbaik ditunjukkan oleh varian A. Kelarutan terbaik ditunjukkan oleh varian C. Tomat ceri yang dilapisi larutan *edible film* varian C (50% protein LCT + 50% ISP) memiliki ketahanan terbaik ditinjau dari susut bobot dan perubahan warna terendah seiring dengan lama penyimpanan.

Kata kunci: *edible film*, karakterisasi, protein LCT, tomat ceri

ABSTRACT

Tofu whey (TW), a by-product of tofu production, contains high levels of protein and is considered a pollutant. As tofu production grows, the volume of TW will continue to increase. To solve this problem, TW can be used as a protein source in the production of edible films. This study aims to use tofu whey protein (TWP) to produce edible films for coating cherry tomatoes (Solanum lycopersicum var. cerasiforme). Research methods production of various edible film variants and application of the coating to cherry tomatoes. Results showed that the characteristics of the edible film include color, opacity, and light transmittance, which were the best in variant E. The best swelling ratio, water contact angle, water vapor and oxygen permeability, and thermal stability were shown by variant A. The best solubility was shown by variant C. Cherry tomatoes coated with the edible film solution of variant C (50% LCT protein + 50% ISP) exhibited the best durability in terms of weight loss and color change over time during storage.

Keywords: *characterization, cherry tomatoes, edible film, TWP*

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