

Pengaruh Nanokitosan Dari Limbah *Black Soldier Fly* Terhadap Umur Simpan Buah Segar

(The Effect of Nanochitosan from Black Soldier Fly Waste on the Shelf Life of Fresh Fruit)

Dibimbing oleh: Dr. Titik Budiati S.TP., MT., M.Sc.

Dwi Era Eka Priswana

Study Program of Food Engineering Technology

Majoring of Agriculture Technology

Program Studi Teknologi Rekayasa Pangan

Jurusan Teknologi Pertanian

ABSTRACT

*Black soldier fly waste can be extracted into nanochitosan, which has antifungal activity. Nanochitosan has the potential to maintain the freshness of products such as fruit during the storage process, and the main factor causing quality degradation is storage temperature. This can be done by characterizing chitosan with FTIR, characterization of nanochitosan with SEM, TEM, PSA, and Zeta Potential, conducting antifungal activity tests (minimum inhibitory concentration and minimum killing concentration), and estimating shelf life using the ASLT Arrhenius model on fresh fruit. A decrease in the quality of fresh fruit can be evaluated using the Accelerated Shelf Life Test (ASLT) Arrhenius Model using variations in storage temperatures of 4°C, 28°C, and 40°C and storage time with total mold testing (*Aspergillus flavus*) and sensory observations including color, texture, and smell. The effect of nanochitosan from Black Soldier Fly waste on strawberries and cherry tomatoes based on total fungus test parameters and hedonic tests stated that nanochitosan could extend the shelf life of these two fruits compared to fruit that was not added with nanochitosan. Strawberry fruit with the addition of nanochitosan was stored at a temperature of 4°C (10.70 days), a storage temperature of 28°C (4.37 days), and a storage temperature of 40°C (3.00 days). In cherry tomatoes with the addition of nanochitosan, the storage temperature was 4°C (12.08 days), 28°C (7.71 days), and 40°C (4.41 days).*

Keyword: Fresh Fruit, Nanochitosan, Shelf Life