

Pengaruh Nanokitosan dari Limbah Selongsong Pupa *Black Soldier Fly* (BSF) Terhadap Umur Simpan Sayuran Segar (*The effect of nanochitosan from Black Soldier Fly (BSF) shelf life on fresh vegetable storage*)

Supervisor: Dr. Titik Budiati S.Tp.MT,M.Sc

SEPTI KONITA SARI

Study Program of Food Engineering Technology

Majoring of Agricultural Technology

Program Studi Teknologi Rekayasa Pangan

Jurusan Teknologi Pertanian

ABSTRACT

*Chitosan is an antimicrobial compound that can be extracted from Black Soldier Fly (BSF) waste. Chitosan with nanoparticle size has the potential to inhibit quality degradation to extend the shelf life of fresh products such as fresh vegetables. The aim of this research is to determine the characteristics of chitosan using FTIR testing, determine the morphology of nanochitosan using SEM, TEM, PSA and Zeta potential testing, test the antimicrobial activity (MIC and KBM) of nanochitosan against spoilage microorganisms (*Aspergillus flavus*), and estimate the shelf life. using the ASLT Arrhenius model method on fresh vegetables. Deterioration in the quality of fresh vegetables can be evaluated by varying storage temperatures of 4°C, 28°C, 40°C and storage time by testing total mold and sensory observations, including color, smell and texture. The effect of nanochitosan from Black Soldier Fly (BSF) casings on lettuce and leunca vegetables based on total mushroom test parameters and hedonic tests states that nanochitosan can extend the shelf life of these two vegetables. Lettuce with the addition of nanochitosan at 4 °C storage had a shelf life of 11.38 days, 28 °C (5.83 days), and 40 °C (2.33 days). Eggplant with the addition of nanochitosan at a storage temperature of 4 °C had a shelf life of 11.41 days, at a temperature of 28 °C (8.38 days) and a temperature of 40 °C (6.46 days).*

Keywords: *Black Soldier Fly (BSF), Fresh vegetables , Nanochitosan*