

ABSTRACT

*Marirotul Aisaroh.24020122140137. Analysis of Lycopene and Vitamin C Content of Tomatoes (*Solanum lycopersicum* L. var. Blazer) Based on Ripeness and Storage Duration. Under the guidance of Yulita Nurchayati and Muhammad Luqman Hakim.*

*Tomatoes (*Solanum lycopersicum* L.) are climacteric fruits that are susceptible to post-harvest damage due to their high water content. Their quality is influenced by the level of ripeness and storage duration, especially at cold temperatures. This affects the physical condition of the fruit and the content of bioactive compounds, especially lycopene and vitamin C. This study aims to examine the effect of the level of ripeness, storage duration, and the interaction between these two factors on the lycopene and vitamin C content of tomato var. Blazer, and to obtain a treatment combination that is still able to maintain high lycopene and vitamin C content during storage. The study design used a Completely Randomized Design (CRD) with two factors, namely the level of ripeness of 120, 130, and 140 days after planting (dap after planting) and storage duration (0, 3, 6, and 9 days). Sampling was carried out using a purposive sampling method. Samples were packaged using PP (polypropylene) plastic at a temperature of 7°C with three replications. The parameters observed included morphology (color, texture, outer skin characteristics), weight loss, diameter loss, lycopene and vitamin C content. Lycopene content was extracted using a mixture of hexane and acetone with a ratio of 9: 1. Vitamin C content was extracted using CO₂-free distilled water. Both compounds were then analyzed using the UV-Vis spectrophotometry method. Data were analyzed using ANOVA and DMRT test with a confidence level of 5%. The results showed that the level of ripeness affected the increase in lycopene and vitamin C content of tomato fruit var. Blazer. Storage time at cold temperatures maintained lycopene and vitamin C content after 9 days of storage. There was an interaction between the level of ripeness and storage time on lycopene and vitamin C content. The treatment combination that still maintained high lycopene content was 140 hst with 6 days of storage at 11.50 mg/100g. The treatment combination that maintained high vitamin C content was 130–140 hst with 9 days of storage at 3.18 mg/100g. Storage at 7°C maintains lycopene and vitamin C content.*

Keywords: post-harvest handling, cold storage, bioactive compounds, tomato variety Blazer