

**IMPACT OF HOLED FILM PACKAGING ON THE QUALITY OF
EDAMAME (*Glycine max* (L.) Merr.) “SHIRAYAMA-DADACHA”
CULTIVAR DURING STORAGE**

ABSTRACT

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Shirayama-dadacha edamame (*Glycine max* (L.) Merr.) cultivar is a high-quality edamame cultivar in Tsuruoka city. This cultivar is famous for its umaminess, which is related to sugar and amino acid content in it. Having high-quality, high-demand and produced in summer, this cultivar is considered as a product that going through deterioration easily in a short time of storage. The objective of this study was to determine the effect of holed film packaging and the various storage temperature on the quality of Shirayama-dadacha edamame during storage time. This study was a two-factorial CRD. Both storage temperature and hole on the packaging were three levels, 20°C, 25°C, and 30°C for the storage temperature, and the hole on packagings were 0 cm², one hole (0.196 cm²) covered with non-woven fabric, and one uncovered hole (0.196 cm²). The edamame storage process was carried out for 12 days. The analysis includes edamame pod's color (lightness, a* value, b* value, hue angle, chroma, and color difference), sugar content analysis (sucrose, glucose, and fructose), and amino acid analysis (glutamic acid content). The results generally include pod color (lightness from 55.87 to 41.80; a* value from -14.597 to -0.825; b* value from 38.96 to 23.95; hue angle from 110.51 to 100.12; chroma from 41.61 to 24.27 and color difference from 0 to 24.75). From the sugar content and glutamic acid results, it seems that low oxygen concentration affected sugar-metabolism-related enzyme activities.

Keywords: Shirayama-dadacha, Edamame, OPP packaging, Holed packaging,
Modified Atmosphere Packaging

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**PENGARUH LUBANG PADA KEMASAN FILM TERHADAP KUALITAS
KULTIVAR EDAMAME (*Glycine max* (L.) Merr.
“SHIRAYAMA-DADACHA” SELAMA MASA PENYIMPANAN
ABSTRAK**

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Edamame (*Glycine max* (L.) Merr.) kultivar “Shirayama-dadacha” merupakan kultivar unggul di kota Tusruoka. Kultivar Shirayama-dadacha terkenal memiliki rasa umami yang disebabkan oleh kandungan gula dan asam amino yang tinggi. Dengan kualitas tinggi dan juga permintaan pasar yang tinggi, edamame yang masa produksinya hanya saat musim panas ini merupakan produk hortikultura yang dapat mengalami kerusakan kualitas dalam waktu singkat. Penelitian ini bertujuan untuk mengetahui pengaruh dari luasan lubang tertutup dan tidak tertutup pada kemasan dan variasi suhu penyimpanan terhadap kualitas dari edamame “Shirayama-dadacha” kultivar selama masa penyimpanan. Variasi dari luasan lubang adalah 0 cm² atau tanpa lubang, 1 lubang (0,196 cm²) ditutup dengan kain *non-woven*, 1 lubang tanpa tutup (0,196 cm²), dan variasi suhu penyimpanan 20°C, 25°C, 30°C. Penyimpanan edamame dilakukan selama 12 hari. Analisa yang dilakukan meliputi analisa warna (*lightness*, *a* value*, *b* value*, *hue angle*, *chroma*, dan *color difference*), analisa kadar gula (sukrosa, glukosa, dan fruktosa), dan analisa kadar asam amino (asam glutamat). Secara umum hasil dari penelitian adalah warna edamame (*lightness* dari 55,87 hingga 41,80; *a* value* dari -14,597 hingga -0,825; *b* value* dari 38,96 hingga 23,95; *hue angle* dari 110,51 hingga 100,12; *chroma* dari 41,61 hingga 24,27 dan *color difference* dari 0 hingga 24,75). Ditemukan fenomena aktivitas enzimatis terkait metabolisme gula dilihat dari hasil kadar gula dan kadar asam amino di kondisi kadar oksigen yang rendah.

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