

INTISARI

Proses pematangan pisang ambon kuning secara alami setelah dipanen cenderung menghasilkan warna kulit yang kehijauan, kurang cerah, dan tidak seragam, sehingga upaya perbaikan dilaksanakan melalui pematangan buatan. Beberapa teknik pematangan buatan, meskipun berhasil memperbaiki kenampakan buah, seperti penggunaan kalsium karbida atau ethepon memiliki risiko keamanan ketika dibandingkan dengan penggunaan *ethylene*, yang secara alami juga diproduksi selama proses pematangan buah. Oleh karena itu, perlu diberikan perlakuan yang dapat membantu meningkatkan mutu buah yang aman digunakan. Salah satunya dengan pemberian kombinasi perlakuan *degreening* menggunakan *ethylene*. Tujuan penelitian ini untuk menganalisis pengaruh dari konsentrasi *ethylene*, lama pemaparan *ethylene*, dan suhu lingkungan penyimpanan terhadap perubahan parameter mutu fisik dan kimia pisang ambon kuning, serta menentukan kombinasi perlakuan *degreening* terbaik yang diberikan pada pisang ambon kuning. Metode Taguchi dan *Grey Relational Analysis* (GRA) digunakan untuk menentukan kombinasi perlakuan *degreening* terbaik. Faktor yang digunakan yaitu konsentrasi gas *ethylene*, suhu penyimpanan, dan lama pemaparan. Masing-masing faktor dikombinasikan dan digunakan untuk memperoleh data respons derajat kecerahan (L^*), derajat warna hijau ($-a^*$), derajat warna kuning (b^*), kekerasan kulit dan daging buah, total padatan terlarut, total klorofil dan karotenoid. Analisis dan pengolahan data yang dilakukan adalah perhitungan efek faktor *mean*, efek faktor *Signal to Noise Ratio* (SNR), perbandingan analisis *mean* dan *Signal to Noise Ratio* (SNR) tiap parameter, perhitungan ANOVA dan *Grey Relational Analysis* (GRA). Kombinasi perlakuan *degreening* terbaik diperoleh pada konsentrasi gas *ethylene* 185,18 ppm, suhu penyimpanan $16 \pm 1^\circ\text{C}$, dan lama pemaparan gas selama 48 jam.

Kata kunci: *degreening*, *ethylene*, metode Taguchi, pisang ambon kuning.

ABSTRACT

The natural ripening process for ambon kuning bananas after harvested tends to produce a greenish, less bright, and non-uniform skin color. Improvements, therefore, are required through artificial ripening. Some degreening techniques, such as the use of calcium carbide or ethepon, although they can improve the appearance of the fruit, may pose a safety risk when compared to ethylene gas, the gas that is naturally produced during the ripening process of the fruit. Therefore, it is necessary to provide treatment that can improve the appearance quality and safe to use. The purpose of this study was to analyze the effect of ethylene gas concentration and its exposure time, and temperature of the storage environment temperature on the physical and chemical quality of ambon kuning bananas, and to determine the best combination of degreening treatments given to the fruit. The Taguchi and Gray Relation Analysis (GRA) methods were used to determine the best degreening treatment combination. The factors used were the concentration of ethylene gas, storage temperature, and exposure time. Each factor was combined and used to obtain degrees of brightness (L^*), degrees of green ($-a^*$), degrees of yellow (b^*), hardness of skin and pulp, total dissolved solids, total chlorophyll, and carotenoids. The effect of mean factor, Signal to Noise Ratio factor (SNR), the comparison of both for each parameter were calculated, followed with ANOVA and the Gray Relation Analysis (GRA). The best combination of degreening treatment was obtained at a concentration of ethylene gas of 185.2 ppm, a storage temperature of $16 \pm 1^\circ\text{C}$, and a length of exposure to the gas for 48 hours.

Key words: ambon kuning banana, ethylene degreening, Taguchi method.