

INTISARI

Studi Pengaruh Variasi Konsentrasi Pelapis Gel Lidah Buaya Terhadap Gas Etilen Pada Buah Pisang (*Musa paradisiaca*) Dengan Menggunakan Spektrometer Fotoakustik Laser CO₂

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Telah dilakukan pendeteksian emisi gas etilen pada buah pisang raja berlapis gel lidah buaya dengan konsentrasi 0% (kontrol), 20%, 40% dan 60% menggunakan spektrometer fotoakustik laser CO₂. Gas etilen menyerap paling kuat pada garis 10P14 laser CO₂ mempunyai daya $(2,4 \pm 0,1)$ W sehingga menghasilkan batas deteksi terendah $(2,6 \pm 0,3)$ ppb. Pendeteksian emisi gas etilen ini dilakukan untuk mengetahui pengaruh pelapisan gel lidah buaya terhadap produktivitas etilen pisang raja. Hasil penelitian menunjukkan bahwa fase masak optimum pisang raja berlapis gel lidah buaya dengan konsentrasi 0% (kontrol), 20%, 40% dan 60% pada masa ke-10 hsp. Namun secara fisik pembusukan paling cepat terjadi pada pisang raja berlapis gel lidah buaya 60% dan paling lambat terjadi pada pisang raja berlapis gel lidah buaya 20%. Pelapisan gel lidah buaya ini berpengaruh pula terhadap susut bobot pisang raja. Penyusutan terkecil diperlihatkan oleh pisang raja berlapis gel lidah buaya 20% sedangkan penyusutan terbesar pada pisang raja berlapis gel lidah buaya 60%.

Kata kunci: spektrometer fotoakustik, laser CO₂, gas etilen pisang, pelapisan gel lidah buaya

ABSTRACT

Study of The Variation Effect of Aloe Vera Gel Coating Concentration on Ethylene Gas in Bananas Fruit (Musa paradisiaca) Using CO₂ Laser Photoacoustic Spectrometer

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The detection of ethylene gas emissions in plantain fruit coated with Aloe gel in the concentration of 0% (control), 20%, 40% and 60% by using a photoacoustic spectrometer CO₂ laser has been conducted. The detection of ethylene gas emissions is carried out to determine the effect of aloe vera gel coating on the ethylene productivity of plantains. Our result indicates that the optimum ripe phase of plantains is coated within the concentration of 0% (control), 20%, 40% and 60% at the 10th time hsp. Ethylene gas absorbs the strongest power in the amount of (2.4 ± 0.1) W on 10P14 CO₂ laser line and yields the lowest detection limit equal to (2.6 ± 0.3) ppb. Nevertheless, the physical decay most rapidly occurs in plantains coated by 60% aloe gel and the slowest occurs in plantains coated by 20% aloe vera gel. In addition to that, Aloe vera gel coating affects the shrinkage of plantain weight. The smallest shrinkage shown by plantain with 20% aloe gel coated where as the significant shrinkage in plantain with 60% aloe gel coated.

Keywords: spectrometer of photoacoustic, CO₂ laser, ethylene gas of bananas fruit, coating of aloe vera gel