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Effect of mixed loading of banana (*musa paradisiaca* cv.
Berangan) with pineapple (*Ananas comosus* cv. Jospine) at
optimum storage temperature / Chiew Lay Im.

PERPUSTAKAAN SULTANAH NUR ZAHIRAH
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PERPUSTAKAAN SULTANAH NUR ZAHIRAH UMT

EFFECT OF MIXED LOADING OF BANANA (*Musa paradisiaca* cv. Berangan)
WITH PINEAPPLE (*Ananas comosus* cv. Josapine) AT OPTIMUM STORAGE
TEMPERATURE

By
Chiew Lay Im

Research Report submitted in partial fulfillment of
the requirements for the degree of
Bachelor of Science in Agrotechnology (Post Harvest Technology)

DEPARTMENT OF AGROTECHNOLOGY
FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE
UNIVERSITI MALAYSIA TERENGGANU

2010

ENDORSEMENT

The project report entitled **Effect of Mixed Loading of Banana (*Musa paradisiaca* cv. Berangan) with Pineapple (*Ananas comosus* cv. Josapine) at Optimum Storage Temperature** by Chiew Lay Im, Matric No. UK 15072 has been reviewed and corrections have been made according to the recommendations by examiners. This report is submitted to the Department of Agrotechnology in partial fulfillment of the requirement of the degree of Bachelor of Science in Agrotechnology (Post Harvest Technology), Faculty of Agrotechnology and Food Science, Universiti Malaysia Terengganu.


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DECLARATION

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged.

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ABSTRACT

Bananas intended for export are harvested at unripe stage as bananas ripened on plant often split, have poor texture and tend to be mealy. Thus, they are needed to be artificially ripened in ripening room once they arrive at destination before they can be at the point of sale. However, precise and well-controlled condition of ripening room is required and this in turn increases the total cost of the post-harvest handling of banana. This subsequently gives rise to its price. Therefore, mixed loading of banana with other fruits, such as pineapple, can be an alternative way to trigger the ripening of banana. This project was carried out to study the effects of mixed loading of bananas with pineapples at optimum storage temperature ($13\pm 1^{\circ}\text{C}$) for 12 days. In this project, 1 kg of bananas were packed together with pineapples in 1:0 (control), 1:1, 1:2 and 1:3 ratio by weight (kg). Ripening of bananas was examined every 3 days based on the changes on skin colour, pulp firmness, starch content, TSS content and weight loss. The statistical analysis indicates that bananas from treatment of 1:3 changed significantly on day 3 for all the parameters except weight loss, implying that the ripening was induced before day 3 while those from treatment of 1:2 changed significantly on day 6, indicating that ripening was initiated after day 3. Bananas from treatment of 1:1 showed significant changes into yellow colour after day 6. Throughout the storage period, bananas from treatment of 1:1 and control exhibited significant different from treatment of 1:2 and 1:3, implying that their ripening commencement was triggered much slower. Thus, it could be suggested that weight ratio of 1:3 could be used to induce ripening of bananas more rapidly compared to the other treatments and control.

ABSTRAK

Pisang yang ditanam untuk tujuan eksport perlu dituai pada tahap sebelum masak kerana pisang yang dibiarkan masak di atas pokok biasanya akan menunjukkan kualiti yang kurang memuaskan. Oleh itu, pisang tersebut akan dirangsang untuk masak di dalam bilik pemsakan sesampainya di destinasi sebelum boleh dijual di pasaran. Kawalan yang tepat dan baik amat diperlukan bagi memastikan kemasakan buah yang diingini dapat dicapai. Ini meyebabkan penambahan kos pengendalian lepas tuai pisang tersebut dan seterusnya meningkatkan harga pisang. Oleh itu, simpanan campuran antara pisang dengan nanas boleh dijadikan sebagai satu cara alternatif untuk merangsang kemasakan buah pisang. Projek ini telah dijalankan untuk mengkaji kesan simpanan campuran antara dua jenis buah tersebut di bawah suhu optimum ($13\pm 1^{\circ}\text{C}$) selama 12 hari. Dalam projek ini, 1 kg pisang disimpan bersama dengan nanas mengikut nisbah berat yang berlainan seperti berikut: 1:0 (kawalan), 1:1, 1:2 and 1:3. Kemasakan buah pisang diuji setiap 3 hari berdasarkan perubahan dalam warna kulit, ketegaran isi, berat buah, kandungan kanji dan jumlah pepejal terlarut. Keputusan menunjukkan pisang yang disimpan mengikut nisbah 1:3 dan 1:2 masing-masing mempunyai perubahan yang sangat ketara dalam semua parameter yang diuji kecuali perubahan berat buah pada hari ke-3 dan hari ke-6. Ini menunjukkan kemasakan buah telah dirangsang sebelum hari ke-3 bagi pisang dari nisbah 1:3 dan selepas hari ke-3 untuk pisang dari nisbah 1:2. Pisang dari nisbah 1:1 menunjukkan perubahan warna yang ketara selepas hari ke-6. Sepanjang tempoh simpanan campuran dijalankan, pisang dari nisbah 1:1 dan kawalan mempunyai perbezaan ketara dengan pisang dari nisbah 1:2 dan 1:3. Ini menunjukkan kemasakan buah berlaku lebih lambat untuk pisang dari nisbah 1:1 dan kawalan. Justeru, nisbah berat 1:3 boleh digunakan untuk merangsang kemasakan buah pisang dengan lebih cepat berbanding dengan nisbah yang lain dan kawalan.