[illegible] OF *CASSIA ALATA* ON
[illegible] OF MELON FRUIT ROT

WAN NORFUZAH BINTI WAN IBRAHIM

[illegible] FACULTY OF BIOTECHNOLOGY AND FOOD SCIENCE
UNIVERSITI MALAYSIA TERENGGANU

THE ANTIMICROBIAL ACTIVITIES OF *CASSIA ALATA* ON THE CAUSAL ORGANISMS OF MELON FRUIT ROT

By
Wan Mahfuzah Binti Wan Ibrahim

Research Report submitted in partial fulfillment of
the requirement 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 reported entitled **The antimicrobial activities of *Cassia alata* on the causal organisms of melon fruit rot** by **Wan Mahfuzah binti Wan Ibrahim**, Matric No. **UK15927** has been reviewed and corrections have 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

.....

(SITI NORDAHLIAWATE BT MOHAMED SIDIQUE)

Main Supervisor

SITI NORDAHLIAWATE MOHAMED SIDIQUE
Lecturer
Department of Agrotechnology
Faculty of Agrotechnology and Food Scienc
Universiti Malaysia Terengganu
21030 Mengabang Telipot

Date : 12/5/2010

.....

(ROSHITA BINTI IBRAHIM)

Co-Supervisor
ROSHITA IBRAHIM
Pensyarah
Jabatan Agroteknologi
Fakulti Agroteknologi dan Sains Makanan
Universiti Malaysia Terengganu

Date: 12/5/10

ACKNOWLEDGEMENT

Alhamdulillah with the blessing from the almighty Allah S.W.T, I managed to finish up this final year project. First of all, I would like to thanks my supervisor, Siti Nordahliawate binti Mohamed Sidique and my co-supervisor, Roshita binti Ibrahim and also Dr. Chuah Tse Seng as the coordinator of Projek Ilmiah Tahun Akhir (PITA) that always help and guide me whenever I do mistakes throughout this project. Without their helps, this project might not be completed.

Then, I would like to thanks my parents and family for always giving me support and courage either in material or advice that they gives to me to finish this studies.

A millions of appreciation I would like to gives to my friends that helps me a lot in a process to finish this studies. Here, I would like to express my sincere gratitude for their helps and encouragement.Thank you for helping me in the laboratory and also helped me to complete this thesis writing. Then, I would also thank to the staffs from Makmal Teknologi Lepastuai that helped us by providing materials that we needed and stayed overtime whenever we have to works in the laboratory.

Lastly, I would like to thank Faculty of Agrotechnology and Food Science and also Universiti Malaysia Terengganu for given us the opportunity to experience how to do research which is very beneficial for our future.

ABSTRACT

The objectives of this study were to observe the antimicrobial activities of *Cassia alata* (Gelenggang) extractions at different concentration and to evaluate the difference between disk diffusion and spore suspension methods. The crude extract of *C.alata* were prepared from its leaves parts. The antimicrobial activities were measured from the inhibition zone of the *Fusarium oxysporum* and *Fusarium solani* which is the causal organism for fruit rot diseases. The results showed that, from six concentrations that were used, the 10 mg/ml showed the best results because its yields higher inhibition zone in both methods and it is followed by 5 mg/ml, 2 mg/ml, 1 mg/ml, 0.1 mg/ml and 0.01 mg/ml. The difference between this two methods were the spore suspension provides early inhibition compare to disk diffusion method but the disk diffusion methods yields better results in terms of area of the inhibition zone. Besides that, this two different strain also gives effect to the inhibition zone where the *F. solani* were re-growth on the inhibition sites after day 4 but for the *F. oxysporum*, the inhibition zone are maintained until day 8 because they are more susceptible compare to *F. solani*. From the analysis by using Tukey test, it showed that there were significance different ($P<0.05$) between the concentration especially for 10 mg/ml of extraction, compare with the control.

ABSTRAK

Objektif kajian ini adalah untuk memerhatikan aktiviti anti-microbial dari ekstrak *Cassia alata* (Gelenggang) pada kepekatan yang berbeza dan juga untuk menilai perbezaan antara teknik sebaran spora dan juga penyerapan cakera. Serbuk ekstrak daun gelenggang ini diperolehi daripada bahagian daunnya. Aktiviti an-timikrobial ini diukur berdasarkan kawasan perencatan yang ditunjukkan oleh *Fusarium oxysporum* dan juga *F.solani* yang merupakan agen penyebab penyakit reput buah. Hasil kajian menunjukkan kepekatan 10 mg/ml merupakan kepekatan yang terbaik apabila berjaya menghasilkan kawasan terencat yang paling luas dan diikuti pula dengan kepekatan 5 mg/ml, 2 mg/ml, 1 mg/ml, 0.1 mg/ml dan 0.01 mg/ml. Terdapat perbezaan antara kedua-dua teknik yang digunakan iaitu teknik sebaran spora dapat menghasilkan kawasan terencat dengan lebih cepat berbanding dengan teknik penyerapan cakera. Walaubagaimanapun, dari segi keluasan kawasan terencat, teknik penyerapan cakera menunjukkan kesan yang lebih baik. Selain itu, penggunaan dua spesies kulat berbeza juga memberi kesan apabila *F. solani* menunjukkan berlaku pertumbuhan semula kulat pada kawasan terencat manakala *F.oxysporum* menunjukkan kadar yang tidak berubah bermula hari keenam. Hasil daripada ujian Tukey telah menunjukkan terdapat nilai yang signifikan ($P<0.05$) antara kepekatan ekstrak yang digunakan terutama bagi perbandingan kepekatan ekstrak 10 mg/ml dan kawalan.