

This Final Year Project Report entitled "Isolation and Characterization of Actinomycetes From Farming Soil of Kota Belud" was submitted by Nurfaezah Binti Ibadat, in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Biology, in the Faculty of Applied Sciences, and was approved by

**ISOLATION AND CHARACTERIZATION OF ACTINOMYCETES  
FROM FARMING SOIL OF KOTA BELUD**



Dr. Liz Chor Wai  
Supervisor

**NURFAEZAH BINTI IBADAT**

Universiti Teknologi MARA  
88997 Kota Kinabalu, Sabah

**Final Year Project Submitted in  
Partial Fulfilment of the Requirements for the  
Degree of Bachelor Science (Hons.) Biology  
in the Faculty of Applied Sciences  
Universiti Teknologi MARA.**

Ajimi Bin Iswan  
Project Coordinator  
B.Sc. (Hons.) Biology  
Faculty of Applied Sciences  
Universiti Teknologi MARA  
88997 Kota Kinabalu, Sabah

Head Centre of Applied Sciences  
Studies  
Faculty of Applied Sciences  
Universiti Teknologi MARA  
88997 Kota Kinabalu, Sabah

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## ABSTRACT

### ISOLATION AND CHARACTERIZATION OF ACTINOMYCETES FROM FARMING SOIL OF KOTA BELUD

Chaudary *et al.*, (2013) menyimpulkan bahawa patogen mikroba semakin banyak resistan kepada antibiotik yang sedia ada. Oleh itu, permintaan untuk menemui antibiotik baharu merupakan salah satu prioritas utama bagi saintis (Alanis, 2005; Sharma *et al.*, 2011). Oleh itu, objektif kajian ini adalah untuk mengasingkan dan mengkarakterisasi actinomycetes dari kawasan pertanian di Kota Belud. Sebanyak 11 actinomycetes diasingkan dari kawasan pertanian di Kota Belud. 8 strain yang diasingkan iaitu NF1, NF2, NF3, NF4, NF5, NF7, NF9 dan NF11 menunjukkan aktiviti antibakterial terhadap sekurang-kurangnya satu bakteria uji. Aktiviti antibakterial ini dijalankan melalui saringan primer dan sekunder. Kaedah garisan silang dilakukan untuk saringan primer dan kedua-dua kaedah penyebaran agar dan penyebaran cakera untuk saringan sekunder. Dalam kajian ini, hanya 2 strain yang melebihi 20 mm iaitu NF3 dalam kedua-dua saringan primer dan sekunder. Empat bakteria uji yang digunakan adalah *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas aeruginosa* dan *Staphylococcus aureus*. Penyebaran agar menunjukkan bahawa NF4 mempunyai zon inhibisi tertinggi di antara strain NF1, NF2, NF3, NF5 dan NF11 dalam inhibisi *Bacillus subtilis*, manakala NF1 inhibisi *Escherichia coli*, NF9 dan NF3 inhibisi kedua-dua *Pseudomonas aeruginosa* dan *Staphylococcus aureus* masing-masing. Terdapat beberapa strain yang menarik seperti NF9 yang diinhibisi oleh bakteria uji yang sama iaitu *Pseudomonas aeruginosa* dalam kedua-dua kaedah penyebaran agar dan penyebaran cakera, manakala NF3 diinhibisi oleh *Staphylococcus aureus* dalam kaedah penyebaran agar dan kaedah garisan silang. Terdapat tidak ada laporan khusus mengenai actinomycetes yang menghasilkan antibiotik di kawasan pertanian ini. Oleh itu, pengasingan dan penentuan actinomycetes dari kawasan pertanian ini mungkin menyumbang kepada penemuan antibiotik baharu dan kajian lanjut mengenai peranan mereka dalam pertanian Kota Belud wajarlah dilaksanakan.