SCREENING AND CHARACTERIZATION OF BACTERIA PRODUCING ANTIBACTERIAL FROM OLIVE SOIL

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2008

SCREENING AND CHARACTERIZATION OF BACTERIA PRODUCING ANTIBACTERIAL FROM CLAY SOIL

By
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PENGAKUAN DAN PENGESAHAN LAPORAN PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:
Screening and Characterization of Bacteria Producing Antibacterial from Clay Soil.
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telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains (Sains Biologi), Fakulti Sains dan Teknologi, Universiti Malaysia Terengganu.

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DECLARATION

I hereby declare that this project report entitled **Screening and Characterization of Bacteria Producing Antibacterial from Clay Soil** is the result of my own research except as cited in the references.

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ABSTRACT

Microorganisms that have a capability to produce antimicrobial properties are widely distributed in nature. Discovery of microorganisms especially bacteria from soil that have a potential in producing antibiotic will become a contribution for a better human life. The aims of this study were to isolate bacteria producing antibiotic from clay soil, characterize and identify the bacteria through their morphology, colony and biochemical activities, and to detect antibiotic resistant produce by isolated bacteria with commercial antibiotic towards the testing bacteria. The methods that used in this study including soil sampling a paddy field in Maras, Terengganu , growing and isolating of bacteria, and also screening and characterization of isolated bacteria through disk diffusion, plugs and antagonist method followed by identification of bacteria using BBL Crystal ID System. All the bacteria were characterized macroscopically and microscopically. An amount of 10 different types of bacteria were detected showing an antibiotic potential and 5 of them were *Brevibacillus brevis*, *Bacillus cereus*, *Corynebacterium aquaticum*, *Streptococcus uberis* and *Agrobacterium tumefaciens* Previous study stated that Genus *Bacillus* was proven have an antibiotic potential and the others still have not well known. All the bacteria may be useful in future research in order to gain avail product from them.

ABSTRAK

Mikroorganisma yang mempunyai kebolehan untuk menghasilkan sifat antimikrobial adalah tersebar luas di alam semulajadi. Penemuan mikroorganisma terutamanya bakteria daripada tanah yang mempunyai potensi untuk menghasilkan antibiotik akan menjadi penyumbang kepada kehidupan manusia yang lebih baik. Tujuan kajian ini dijalankan adalah untuk memencilkan bakteria penghasil antibiotik daripada tanah liat, melakukan pencirian dan pengecaman terhadap bakteria tersebut melalui morfologi sel, koloni dan aktiviti biokimia, serta mengesan kerintangan antibiotik yang dihasilkan oleh bakteria yang telah dipencilkan dengan antibiotik komersial terhadap bakteria ujian. Kaedah yang digunakan ialah persampelan tanah dari sawah padi di Maras, Terengganu, pertumbuhan dan pemencilan bakteria, serta penyaringan dan pengecaman bakteria menggunakan kaedah cerapan disk, 'plugs' dan antagonis diikuti dengan pengenalpastian bakteria menggunakan BBL Crystal ID System kit. Semua bakteria ini dilakukan pencirian secara makroskopik dan mikroskopik. Sejumlah 10 jenis bakteria berbeza telah dikesan mempunyai potensi penghasil antibiotik dan 5 daripadanya adalah *Brevibacillus brevis*, *Bacillus cereus*, *Corynebacterium aquaticum*, *Streptococcus uberis* and *Agrobacterium tumefaciens*. Kajian terdahulu telah membuktikan Genus *Bacillus* mempunyai potensi antibiotik namun bakteria-bakteria lain masih tidak diketahui potensinya. Kesemua bakteria mungkin berguna dalam kajian akan datang untuk memperoleh produk berguna daripadanya.