

DETECTION OF FIBRILLIN GENE OF *Pasteurella*  
*multocida* IN WHITE RATS BY PCR METHOD

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Lihat sabelah

RAK MILIK  
PERPUSTAKAAN SULTANAH NUR ZAHRAH (UMT)

**DETECTION OF FIMBRIAL GENE OF *Pasteurella multocida* IN WHITE RATS  
BY PCR METHOD**

By  
Mohd Afiq Asyran B. Mohd Yusof

A research report submitted in partial fulfillment of  
the requirements of the award of the degree of  
Bachelor of Science (Biological Sciences)

**DEPARMENT OF BIOLOGICAL SCIENCES  
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**PENGAKUAN DAN PENGESAHAN LAPORAN PITA I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

Pengesanan Gen Fimbriae *Pasteurella multocida* pada Tikus Makmal Menggunakan Teknik PCR. Oleh: Mohd Afiq Asyran b. Mohd Yusof, No. Matrik: UK12451 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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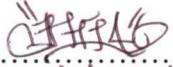
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## **DECLARATION**

I hereby declare that his thesis entitled Detection of Fimbrial Gene of *Pasteurella Multocida* in White Rats by PCR Method is the result of my own research except as cited in the references.

Signature	: 
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## **ABSTRACT**

*P. multocida* B:2 is a bacterium that have a potential to cause an outbreak, mortality to the animal and specifically can cause economic loss to the farming sector. Due to this fact, rapid detection of *P. multocida* B:2 are really important. The aims of this study were to detect the presence of fimbrial gene in *P. multocida* B:2's infected tissue of white rat's (*Sprague dawley*) organs by using the PCR technique and to test the specificity of the primers. Three sets of fimbriae gene primers were used which namely as pair 1; EZ1(F) and EZ2(R), pair 2; EZ3(F) and EZ4(R), pair 3; EZ5(F) and EZ6(R). The presence of fimbrial gene in infected tissues (lung, liver, kidney, blood from heart) was successfully identified by using PCR technique. From this finding, it was suggested that there was a presence of *P. multocida* B:2 in the tissue organs. This study also has tested the specificity of primer to various types of fimbriae using animal model introduced with *Escherichia coli* which is type 1 fimbriae. Results also indicated that all three sets of primers were generated amplified product of fimbriae gene with size ranging from 400-500bp from isolated *P. multocida* B:2 and white rats that have been introduced with *P. multocida* B:2. This study truly demonstrated PCR technique as a liable method to identify the presence of *P. multocida* B:2 in animal model.

## **ABSTRAK**

*P. multocida* B:2 adalah bakteria patogenik yang mempunyai potensi wabak dan kematian kepada haiwan ternakan dan seterusnya menyebabkan kerugian dari segi ekonomi kepada sektor perternakan haiwan. Disebabkan faktor ini, pengesanan bakteria *P. multocida* B:2 dengan pantas adalah amat penting. Sasaran kajian ini adalah untuk mengenal pasti kehadiran gen fimbrial bakteria *P. multocida* B:2 di dalam tisu organ tikus yang dijangkiti dan menguji ketepatan primer yang digunakan dengan menggunakan teknik PCR. Tiga set primer telah digunakan iaitu P1; EZ1(F) dan EZ2(R), P2; EZ3(F) dan EZ4(R), P3; EZ5(F) dan EZ6(R). Kehadiran gen fimbria di dalam tisu yang dijangkiti (peparu, hati, ginjal, darah daripada jantung) telah berjaya dikenalpasti, ini menunjukkan kehadiran *P. multocida* B:2 di dalam tisu tersebut dengan menggunakan teknik PCR. Manakala ketepatan primer yang digunakan telah diuji dengan menggunakan *E. coli* yang mana ianya adalah fimbria *type 1*. Keputusan juga menunjukkan tiga set primer yang telah digunakan telah menghasilkan produk gen fimbria dengan saiz diantara 400-500bp. Kajian ini membuktikan teknik PCR boleh digunakan dalam mengesan kehadiran *P. multocida* B:2 dalam haiwan ternakan secara pantas dan efisien.