

EFFECTS SERUM 161 IN WHITE RATS INOCULATED WITH
KILLED *Pasteurella multocida* B2 STRAIN

K. MISHRAN AND M. KALIMATI

FACULTY SCIENCE DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU

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EFFECTS SERUM IGA IN WHITE RATS VACCINATED WITH KILLED *Pasteurella*
multocida B2 ORALLY

By
K Vishnutharan A/L Kalimuthu

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Faculty of Science and Technology
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**JABATAN SAINS DAN BIOLOGI
FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU**

PENGAKUAN DAN PENGESAHAN PITA I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: **EFFECTS SERUM IGA IN WHITE RATS VACCINATED WITH KILLED *Pasteurella multocida* B2 ORALLY** oleh **K VISHNUTHARAN A/L KALIMUTHU**, No. Matrik: **UK12155** telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperoleh Ijazah Sarjana Muda Sains (Sains Biologi), Fakulti Sains dan Teknologi, Univrsiti Malaysia Terengganu.

Disahkan oleh:

Penyelia Utama

Nama: P.M.DR. MOHD EFFENDY BIN ABD. WAHID

Cop Rasmi:

PROF. MADYA DR. MOHD. EFFENDY ABD WAHID
Pegawai
Institut Bioteknologi Marin
Universiti Malaysia Terengganu
21030 Kuala Terengganu, Terengganu.

Tarikh: 5 Mei 2009

Ketua Jabatan Sains Biologi

Nama: PROFESOR MADYA DR. AZIZ BIN AHMAD

Cop Rasmi:


PROF. MADYA DR. AZIZ BIN AHMAD
Ketua
Jabatan Sains Biologi
Fakulti Sains dan Teknologi
Universiti Malaysia Terengganu
21030 Kuala Terengganu

Tarikh: 11 MAY 2009

DECLARATION

I hereby declare that this thesis entitled Effects serum IgA in White Rats vaccinated with killed *Pasteurella multocida* B2 orally is the result of my own research except as cited in the references.

Signature
Name
Matrix No
Date

: 
: K Vishnutharan A/L Kalimuthu
: UK12155
: 11 May 2008

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ABSTRACT

Pasteurella multocida B2 is the main cause of Haemorrhagic septicaemia (HS), a chronic disease that infects cattles and buffoles in the region of Asia. Therefore, a study was done to induce the production of Immunoglobulin a (IgA) as to increase the protection against this disease. Thus, this study was carried out to determine the concentration and level of IgA in serum followed by exposure to formalin killed *Pasteurella multocida* B2. In the study, 36 clinically healthy female Albino Wistar rats were divided into four groups according to the dosage that will be exposed; Group 1 (10% vaccination dosage), Group 2 (30% vaccination dosage), Group 3 (50% vaccination dosage) and Group 4 (negative control). There were two oral vaccination exposures done in week 1 and week 3 in the form of food prepared. Enzyme-linked immunoabsorbent assay (ELISA) was subjected to the serum samples collected once every week from each rats from all the groups respectively to determine the level of IgA. As a result, significant difference ($p < 0.05$) of IgA were obtained among all the groups in the study. The serum IgA levels of white rats exposed to formalin killed *Pasteurella multocida* B2 in group 3 showed a higher level of IgA as a reaction to immune response following exposure throughout the study and peaked in week 6 compared to the IgA level of white rats in Group 1 and Group 2 monitored throughout the study. It was concluded that the concentration of IgA in the serum of white rats increased following exposure to killed *Pasteurella multocida* B2 orally.

ABSTRAK

Pasteurella multocida B2 adalah penyebab utama Hemorrhagic Septicaemia, merupakan penyakit kronik yang khususnya menjangkiti haiwan ternakan seperti kambing, lembu dan kerbau di benua Asia. Oleh yang demikian, satu kajian telah dibuat untuk mendorong penghasilan Immunoglobulin A (IgA), merupakan antibodi yang memberi perlindungan terhadap penyakit ini. Kajian ini telah dibuat untuk menentukan tahap dan kepekatan IgA dalam serum darah berikutan vaksinasi terhadap *Pasteurella multocida* B2 yang telah dimatikan. Sebanyak 36 tikus putih spesies Albino Wistar telah dibahagikan sama kepada empat kumpulan mengikut sukatan dos vaksin yang ditetapkan. Kumpulan 1 (10% dos vaksin), kumpulan 2 (30% dos vaksin), kumpulan 3 (50% dos vaksin) dan kumpulan 4 (kawalan negatif). Sebanyak dua vaksinasi oral telah dibuat iaitu pada Minggu 1 dan Minggu 3 dalam tempoh jangkamasa 14 hari. Vaksinasi oral dilakukan dalam bentuk pemakanan kepada tikus putih. Sampel serum telah diambil serta dikumpul setiap minggu dari setiap kumpulan dan Enzyme-linked immunoabsorbent assay (ELISA) telah dijalankan ke atas semua sampel serum bagi menentukan tahap IgA. Keputusannya, terdapat perbezaan secara signifikasi ($p < 0.05$) jika dibandingkan dengan keempat-empat kumpulan. Tahap IgA dalam serum berikutan vaksinasi *Pasteurella multocida* B2 pada kumpulan 3 mencatatkan nilai tertinggi terhadap vaksinasi kedua pada Minggu 3 jika dibandingkan dengan Kumpulan 1 dan Kumpulan 2. Sebagai kesimpulan, tahap IgA dalam serum darah meningkat selepas didedahkan vaksinasi oral, *Pasteurella multocida* B2 yang telah dimatikan.