DETERMINATION OF IMMUNOGLOBULIN A (IgA) IN RATS EXPOSED TO LIVE ATTENUATED *Pasteurella multocida* B2

WENG POH LENG

FAKULTI SAINS DAN TEKNOLOGI
UNIVERSITI MALAYSIA TERENGGANU
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DETERMINATION OF IMMUNOGLOBULIN A (IgA) IN RATS EXPOSED TO LIVE ATTENUATED *Pasteurella multocida* B2

By

Weng Poh Leng

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Faculty of Science and Technology
UNIVERSITI MALAYSIA TERENGGANU
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Disahkan oleh: / Verified by:

.....

Penyelia Utama / *Main Supervisor*

Nama:

Cop Rasmi:
PROF MADYA DR. MOHD. EFFENDY ABD WAHID
Pengarah
Institut Bioteknologi Marin
Universiti Malaysia Terengganu
21030 Kuala Terengganu, Terengganu.

Tarikh: April 30, 2007

.....

Ketua Jabatan Sains Biologi /*Head, Department of Biological Sciences*

Nama: DR. AZIZ BIN AHMAD

Cop Rasmi:
Ketua
Jabatan Sains Biologi
Fakulti Sains dan Teknologi
Universiti Malaysia Terengganu
21030 Kuala Terengganu

Tarikh: 30/4/07

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LIST OF ABBREVIATIONS

BHI	Brain Heart Infusion
BSA	Bovine Serum Albumin
° C	Degree Celsius
ELISA	Enzyme-Linked Immunosorbent Assay
=	equals to
g/mL	gramme per mililitre
HS	Hemorrhagic Septicaemia
IgA	Immunoglobulin A
IgD	Immunoglobulin D
IgE	Immunoglobulin E
IgG	Immunoglobulin G
IgM	Immunoglobulin M
<	Less than
>	More than
mL	Mililitre
µL	Micron litre
M	Molar
nm	nanometer
%	percent
rpm	Rotation per minute
TMB	Tetramethylbenzine

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ABSTRACT

A study has been conducted to determine the levels of serum IgA in rats (*Rattus novegicus*) following intranasal exposure of the live attenuated *Pasteurella multocida* B2. The importance of the study is to develop potential vaccine for Hemorrhagic Septicaemia using the induction of mucosal immunity to secrete IgA via intranasal route with live attenuated *Pasteurella multocida* B2. Enzyme-Linked Immunosorbent Assay (ELISA) was used to determine the IgA levels in the serum of rats after the first (Day 7) and second (Day 21) exposure. Attenuation of bacteria was achieved by culturing the bacteria in descending percentage of blood agar starting from 5%, 4%, 3%, 2%, 1% and lastly 0% in growth media at one-day interval for three days. Results showed that there were no significant differences ($p > 0.05$) among control ($p = 0.054$) and treated ($p = 0.056$) groups. However, the levels of serum IgA increased significantly ($p < 0.05$) when compared at different weeks after exposure particularly at week Day 21 ($p = 0.012$), Day 42 ($p = 0.023$) and Day 49 ($p = 0.006$). Although the live attenuated *Pasteurella multocida* B2 was able to increase the levels of serum IgA, they were was not significant when compared to other studies. Further studies is needed to conclude whether the IgA levels in rats is protective when challenged with live virulent bacteria after the exposure of the live attenuated bacteria.

PENENTUAN PARAS IMMUNOGLOBULIN A (IgA) DALAM TIKUS SELEPAS DIDEDAHKAN KEPADA *Pasteurella multocida* B2 HIDUP YANG DILEMAHKAN.

ABSTRAK

Satu eksperimen untuk menentukan paras serum IgA dalam tikus (*Rattus novegicus*) selepas didedahkan dengan *Pasteurella multocida* B2 hidup yang dilemahkan melalui lubang pernafasan pada hidung dengan menggunakan "Enzyme-Linked Immunosorbent Assay" (ELISA). Kepentingan kajian ini adalah untuk menghasilkan vaksin yang berpotensi untuk penyakit "Hemorrhagic Septicaemia" dengan mengaruh keimunan mukosa untuk merembes IgA apabila diberi melalui lubang pernafasan dengan *Pasteurella multocida* B2 hidup yang dilemahkan ini. Serum IgA tikus ditentukan dengan kaedah ini selepas pendedahan pertama pada hari ke-7 dan dan pendedahan kedua pada hari ke-21. Bakteria dilemahkan dengan mengkulturnya dalam peratus darah yang menurun bermula dari 5%, 4%, 3%, 2%, 1% dan akhir sekali 0% pada selang sehari selama tiga hari. Keputusan menunjukkan tiada perubahan signifikan ($p > 0.05$) pada kumpulan kontrol ($p = 0.054$) dan kumpulan rawatan ($p = 0.056$). Tetapi paras serum IgA juga menunjukkan ada peningkatan yang signifikan ($p < 0.05$) apabila dibandingkan pada minggu yang berbeza khususnya pada hari ke-21 ($p = 0.012$), hari ke-42 ($p = 0.023$) dan hari ke-49 ($p = 0.006$). Walaupun *Pasteurella multocida* B2 hidup yang dilemahkan boleh meningkatkan paras serum IgA, tetapi tidak signifikan apabila dibandingkan dengan kajian yang lain. Kajian seterusnya perlu dibuat untuk mengenalpasti samada paras IgA dalam tikus boleh melindungi tikus tersebut apabila dicabar dengan bakteria hidup yang virulen.