CHANGES OF GUT ASSOCIATED LYMPHOID TISSUE
FOLLOWING INTRAPERITONEAL EXPOSURE OF FORMALIN-
KILLED *Pasteurella multocida* B:L IN GOATS

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2005

Changes of Gut Asociated Lymphoid Tissue following intratracheal exposure of formalin-killed pasteurella multocida B2 in goats / Shamala a/p Marimuthu.

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CHANGES OF GUT- ASSOCIATED LYMPHOID TISSUE FOLLOWING INTRATRACHEAL EXPOSURE OF FORMALIN-KILLED *Pasteurella multocida* B2 IN GOATS

By

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Research Report submitted in partial fulfillment of
the requirements for the degree of
Bachelor of Applied Science (Biodiversity Conservation and Management)

Department of Biological Sciences
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2005

This project should be cited as:

Marimuthu, S. 2005. Changes of Gut –Associated Lymphoid Tissue (GALT) following intratracheal exposure of formalin-killed *Pasteurella multocida* B2 in goats. Undergraduate thesis, Bachelor of Applied Science in Biodiversity Conservation and Management, Faculty of Science and Technology,Kolej Universiti Sains dan Teknologi Malaysia,Terengganu,66p.

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FAKULTI SAINS DAN TEKNOLOGI
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PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: Changes of Gut Associated Lymphoid Tissue following Intratracheal Exposure of Formalin-killed *Pasteurella multocida* B2 in Goats.

oleh Shamala A/P Marimuthu, no. matrik: UK6422 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Bacelor Sains Gunaan (Pemuliharaan & Pengurusan Biodiversiti), Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

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ACKNOWLEDGEMENTS

Here I would like to take this opportunity to express my appreciation to all the people who have helped me to finish this project. First of all, I would like to thank God following the success of this project. I would like to express my heartiest appreciation especially to my supervisor Associate Prof. Dr. Mohd. Effendy bin Abdul Wahid who has devoted a lot of his time for invaluable guidance especially on the planning of the study, constructive, suggestions and consistent motivation during the project. I also like to thank Dr. Mahfuzul Hoque for his guidance and helps. My thanks also go to Associate Prof. Liew Hock Chark to have helped me in the statistical analysis. My grateful thanks are also extended to Miss Siti Tafsil Raudah who helped to guide and teach me whenever my supervisor was not around. My thanks also goes to the laboratory assistants and research assistants especially Encik Mohammad and others who provided information about the laboratory, instructions on using the equipments and also for their cooperation. I am also grateful to my family members for their encourage, support and also for the permission to do the laboratory work during holidays. Here, I also wish to deliver my gratitude for the cooperation given by my group members during laboratory works. Talking about encouragement and support, I would like to thank my friends who cheers me up whenever the result is not that good. I appreciate your friendship and hope to keep in touch in future. All of your sacrifices and unreserved will forever last to be remembered.

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LIST OF ABBREVIATIONS

^{O}C	Degree Celsius
%	Percentage
BHI	Brain Heart Infusion
PBS	Phosphate Buffered Saline
cfu/ml	Colony forming unit per milliliter
g	Gram
min	Minute
rpm	Revolution per minute
ml	milliliter
H_2O_2	Hydrogen peroxidase
μ^2	Micrometer square
Pp	Peyer's patches
IELs	Intraepithelial lymphocytes
LPLs	Lamina propria lymphocytes

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ABSTRACT

A study was conducted to determine the role of Gut-Associated Lymphoid Tissue (GALT) in gastrointestinal tract of goats following intratracheal exposures to formalin-killed *Pasteurella multocida* B2. Six clinically healthy goats were divided into two groups; goats group1 were subjected to intratracheal exposures to formalin-killed *P. multocida* B2 while group 2 was remained unexposed control. Prior to two weeks intervals post-exposure, all the goats were slaughtered and the samples of duodenum, jejunum and ileum were taken and fixed in 10% formalin. The fixed tissues were examined histologically. Number of lymphocytes was significantly increased ($P<0.05$) in treated group compared to control group. There was also a significant increase in number of lymphocytes at intraepithelial, lamina propria and crypts ($P<0.05$) between the groups. But, there was no significant increase in number of lymphocytes in duodenum, jejunum and ileum between the groups ($P>0.05$). There was a high correlation ($r=1$) between number of lymphocytes and size of Peyer's patches in treated group. Immunoperoxidase procedure was carried out to identify Ig A producing cells in GALT. According to the result, production of antibody- forming cells after an antigenic challenge are due to the presence of immune memory cells that are recruited and developed. The responses are parallel to the time of antibody responses. Intratracheally-stimulated vaccination had induced gastrointestinal immunity.

PERUBAHAN TISU LIMFOID BERKAIT USUS PADA KAMBING YANG DIDEDAHKAN DENGAN *Pasteurella multocida* B2 YANG DIMATIKAN DENGAN FORMALIN MELALUI INTRATRAKEA.

ABSTRAK

Kajian ini telah dijalankan untuk mengetahui peranan tisu limfoid berkait usus (Gut) di dalam saluran usus kecil kambing. Sebanyak 6 ekor kambing telah dipilih dan dibahagikan kepada 2 kumpulan. Kumpulan kedua merupakan kawalan manakala kumpulan pertama disuntik melalui trakea dengan inokulum *Pasteurella multocida* B2 yang dimatikan dengan formalin. Selepas pendedahan dua minggu, semua kambing telah disembelih dan sampel-sampel duodenum, jejunum dan ileum diambil serta diawet dalam 10% formalin. Tisu-tisu ini telah dikaji dengan cara histologi. Keputusan menunjukkan bilangan limfosit meningkat di kumpulan dirawat berbanding kumpulan kawalan ($P<0.05$).Bilangan limfosit juga meningkat dalam intraepithelial, lamina propria dan crypts di kumpulan dirawat berbanding kumpulan kawalan ($P<0.05$).Tetapi, tiada perbezaan dalam bilangan limfosit di antara duodenum, jejunum dan ileum ($P>0.05$). Terdapat juga korelasi yang tinggi ($r=1$) diantara saiz Peyer's patches dengan bilangan limfosit di kumpulan dirawat.Selain itu, Immunoperoxidase prosedur telah dijalankan untuk mengetahui pembentukan sel antibodi.Keputusan menunjukkan.masa selama dua minggu mencukupi untuk pembentukan sel antibodi selepas didedahkan antigen disebabkan oleh pembentukan sel ingatan. Kajian ini juga menunjukkan bahawa rangsangan melalui trakea ke atas tisu limfoid berkait usus dapat merangsangkan gastrointestinal immuniti.