

MEASUREMENT OF SERUM IMMUNOGLOBULIN IgG AND IgA
FOLLOWING INTRANASAL EXPOSURE OF
FORMALIN-KILLED *Pasteurella multocida* B2 IN GOATS

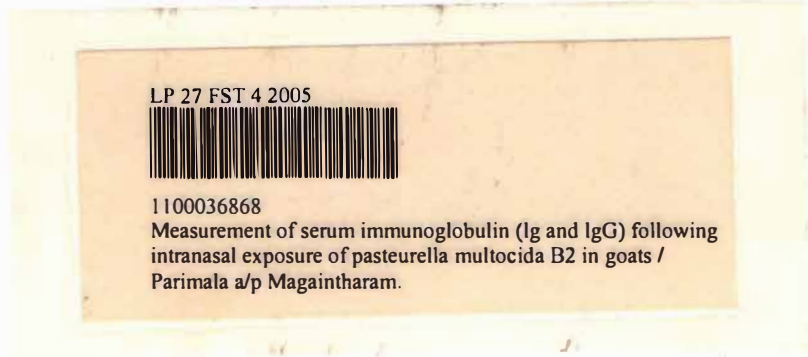
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MEASUREMENT OF SERUM IMMUNOGLOBULIN IgG AND IgA
FOLLOWING INTRANASAL EXPOSURE OF FORMALIN-KILLED *Pasteurella*
multocida B2 IN GOATS

By

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Research Report submitted in partial fulfillment of
the requirements for the degree of
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PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:
Measurement of Serum Immunoglobulin IgG and IgA following Intranasal
Exposure of Formalin-killed *Pasteurella multocida* B2 in Goats.

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LIST OF ABBREVIATIONS

$^{\circ}\text{C}$	degree celcius
%	percentage
μL	microliter
mg	miligram
μ	mu
γ	gamma
α	delta
ε	epsilon
λ	lamda
rpm	round per meter
g	gram
nm	nanometer
OD	Optical density

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ABSTRACT

A study was conducted to determine the level of serum immunoglobulin G and immunoglobulin A responses of goats following intranasal exposures to formalin-killed *Pasteurella multocida* B2. Thirteen healthy goats were divided into three groups. Goats in Group 1 were subjected once to intranasal exposures of formalin-killed *Pasteurella multocida* B2 while goats in Group 2, were subjected to double intranasal exposures of formalin-killed *Pasteurella multocida* B2. Meanwhile, goats in Group 3 were remained unexposed control. Serum samples were collected on the first day after the treatment and collect every five days until day 29. The serum samples then were subjected to Enzyme-Linked Immunosorbent Assay (ELISA) to determine the level of IgG and IgA in serum against this bacteria *Pasteurella multocida* B2. As the results, the serum levels of IgG in the exposed animals of group spray once were gradually increased and reached a significant value ($p < 0.05$) of optical density on day 15. While, the serum IgG levels in Group 2 were given insignificant value ($p > 0.05$) of optical density compared to the unexposed control. Insignificant value of IgA was observed in both Group 1 and Group 2 compared to the unexposed control. It was concluded that IgG has the major functional response in serum while IgA normally plays major role in mucosal and has minor component of systemic humoral immunity.

**SUKATAN SERUM IMMUNOGLOBULIN IgG DAN IgA TERHADAP
KAMBING YANG TELAH DIDEHAHKAN KEPADA BAKTERIA *Pasteurella
multocida* B2 MELALUI INTRANASAL**

ABSTRAK

Satu kajian telah dijalankan tentang kesan bakteria *Pasteurella multocida* B2 terhadap serum immunoglobulin A (IgA) dan Immunoglobulin G (IgG) terhadap kambing yang telah didedahkan melalui intranasal. Tiga belas ekor kambing yang sihat dari segi klinikal dipilih dan dibahagikan kepada 3 kumpulan. Bakteria tersebut didedahkan secara sekali kepada semua ekor kambing dalam kumpulan pertama dan secara berganda kepada semua ekor kambing dalam kumpulan kedua. Semua kambing dalam kumpulan ketiga merupakan kumpulan kawalan. Sampel serum telah diambil dari semua ekor kambing selepas sehari eksperimen ini bermula dan diambil setiap lima hari sekali sehingga hari ke 29. Sampel serum yang telah diambil telah dikaji dengan menggunakan kaedah “Enzyme Linked Immunosorbent Assay” (ELISA) untuk mengetahui level IgA dan IgG. Daripada kajian ini didapati bahawa level IgG dalam kumpulan pertama menunjukkan nilai kesignifikan ($p < 0.05$) pada hari ke-15. Manakala semua kambing dalam kumpulan kedua menunjukkan nilai ketaksignifikan ($p > 0.05$) dibandingkan dengan kumpulan kawalan. Nilai ketaksignifikan ($p > 0.05$) juga diperhatikan pada level serum IgA di dalam semua kambing dari kedua-dua kumpulan pertama dan kedua tersebut. Secara kesimpulannya, didapati bahawa IgG mempunyai fungsi yang utama dalam serum manakala IgA memainkan peranan penting dalam sel mukosal dan mempunyai komponen yang kurang dalam serum.