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Department Of Virology

Preparation of Inactivated Lumpy Skin Disease Virus Vaccine Using ISA 206 and ISA 50 Adjuvants

A Thesis Submitted By

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(B.V.SC., Cairo University, 2010)

For The Degree of M.V.Sc.
(Virology)

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Dedication

For

My amazing father,

My wonderful mother,

My patient wife And
My adorable friends
For their perpetual
encouragement

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I am greatly indebted in all my work and success to our merciful (ALLAH)

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Thesis Title: Preparation of inactivated Lumpy skin disease virus vaccine using ISA 206 and ISA 50 adjuvants.

ABSTRACT

Lumpy skin disease (LSD) is one of the most serious livestock diseases in Egypt since 1988 when the disease spread widely all over the country. since that attenuated sheep pox virus (SPV) used for vaccination cattle flocks against LSD due to immunological relationship between LSD and SPV. There have been numerous attempts to produce live attenuated LSD vaccine but it has stopped due to the seriousness of the disease's return to its virulence and the post vaccinal reaction of the vaccine so we prepare inactivated LSD virus(LSDV) vaccine to immunize the cattle with safe vaccine .Ismailia isolate of LSD was propagated and titrated on Madin Darby Bovine Kidney Cells (MDBK) till reach the highest titer ($10^{5.5}$ $TCID_{50}$/ml). The inactivation process was performed using Bromoethylamine hydro bromide (BEI) that did not affect the immunogenic characters of the LSDV and the process last for 18 hours with 1% concentration of BEI at 37°c. The inactivated LSDV was tested on MDBK cells and the animals free of antibodies for residual live virus and determination of minimal protective dose (MPD) of prepared inactivated LSDV. The MPD was 1.5 ml of the inactivated virus and the vaccine was prepared by adding equal volume of the adjuvants (Montanide ISA 50 and Montanide ISA 206) to the total quantity 3ml of the vaccine. The prepared vaccine was tested for determination of immunological response against the vaccine with ISA 50 and ISA 206 adjuvants and the results was compared. The results of cellular and humoral immune response and the challenge test showed that using inactivated LSDV vaccine improved by Montanide ISA 206 elevate the protective immunity level and considered more safe and avoid viral reversion and transmission of the virus by the blood feeding arthropods.

Key Words: Lumpy skin disease, inactivated virus vaccine, ISA 206, ISA 50.

LIST OF CONTENT

Title **Page**

1. Introduction……...1

2. Review of literature……...4

2.1. History and Geographical Distribution..... ..4

2.1.1 History of LSD in world…. ……..……..4

2.1.2 History of LSD in Egypt……...…….....5

2.2. Classification of LSD……...….….6

2.3. Prosperities of LSD…….……..…..…7

2.3.1 Virus morphology…….…7

2.3.2 Physico-Chemical properties of LSD virus……..7

2.3.3 Antigenic properties…….….8

2.4. Epidemiology…….….8

2.4.1 Host susceptibility…….…8

2.4.2 Mode of transmission……9

2.4.3 Pathogenesis……12

2.4.4 Clinical signs……....12

2.5. Diagnosis of LSD virus…….....14

2.5.1 Isolation of LSD virus in embryonated chicken egg……...14

2.5.2 Isolation of LSDV in Tissue culture……...…15

2.5.3 Serological Identification……17

2.5.3.1 Serum neutralization test (SNT)……...17

2.5.3.2 Enzyme Linked Immuno Sorbent Assay (ELISA)……...19

2.5.3.3 Polymerase Chain Reaction (PCR)……..……..….21

2.6. Immunity of LSD…….....23

2.7. Vaccination of LSD…….....25

2.7.1 Live attenuated LSD vaccine…….....25

2.7.2 Live attenuated sheep pox vaccine…….26

2.7.3 Inactivated LSD vaccine…….27

3 Search Thesis ……29

4 Discussion……48

5 Summary ..……...53

6 References ……..55

Arabic Summary ١

LIST OF TABLES

Table	Title	Page
1	Sequence of forward and revese primers used for amplification of ORF 103 gene	33
2	Cycling conditions of the different primers during cPCR	33
3	Serum neutralizing index (NI) of calves after inoculation with different doses of the inactivated virus and challenge	37
4	Cell mediated immune response of calves vaccinated with two inactivated LSDV vaccines and non vaccinated calves expressed as OD.	39
5	Serum neutralizing index of calves vaccinated with two inactivated LSDVV	40