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List Of Abbreviations

RVF V	: Rift Valley Fever Virus.
SNT	: Serum Neutralization Test
ELISA	: Enzyme Linked Immunosorbant Assay.
AGPT	: Agar Gel Precipitation Test.
S/C	: Subcutaneously
I/P	: Intraperitoneal.
I/C	: Intracerebral.
ED₅₀	: Effective dose fifty.
BHK₂₁	: Baby hamster kidney cell.
CF	: complement fixation test.
HI	: Hemagglutination inhibition test.
ZH₀₁	: Zagazig human strain.
TCID₅₀	: Tissue culture infective dose fifty.
IPLD₅₀	: Intrapretoneal lethal dose fifty.
NI	: Neutralization index.
CPE	: Cytopathic effect.
DDW	: Double distilled water.
IU	: International unit.

6. Summary

Rift Valley Fever (RVF) is an acute infectious zoonotic arthropod – born viral disease affecting many species of animals causing high economic losses in animal wealth and transmitted to human and affecting in Public Health.

Livestock vaccination is an important aspect of the integrated measures adopted to control RVF.

So this study aim to make a trial for improving the immunogenicity of the locally produced inactivated RVF vaccine and overcome the problems influenced by its short term immunity, a new adjuvant named (Montanide IMS 1113) was used in this study replacing the alum gel.

The safety of Montanide was tested in mice and proved to be safe when inoculated in animal body.

Four experimental batches of the oily vaccine were prepared using Montanide IMS 1113 in different formulations 25%, 30%, 40% and 45%.

The sterility and safety of each formulation of the vaccine was tested alone and proved to be sterile & safe.

The potency expressed as ED₅₀ of each formulation was estimated separately in mice, whereas 0.0013 / ml , 0.0011 / ml , 0.0009 ml and 0.005 /ml respectively.

Summary

After estimating the better ED_{50} of each experimental oil adjuvanted RVF vaccine with Montanide IMS 1113 with an optimum oil concentration was chosen to monitor the antibody response in **sheep** which previously tested by using SNT and were confirmed to be free from RVF antibodies. Twenty sheep of 3 – 4 months old age which sera were tested by serum neutralization test and proved to be free from antibodies against RVF virus were used for this purpose. The animals kept in an isolated place and were divided as follows:

Group 1(G1): three animals, each vaccinated S/C with 1ml of inactivated RVF vaccine adjuvanted with Alhydrogel.

Group 2 (G2): four animals, each vaccinated subcutaneously (S/C) with 1ml of inactivated RVF vaccine adjuvanted with Montanide oil one dose, and will be followed up monthly for 11 month.

Group 3(G3): four animals, each vaccinated subcutaneously (S/C) with 1ml of inactivated RVF vaccine adjuvanted with Montanide oil then take a booster dose after one month from the first dose of vaccination and will be followed up monthly for 11 month.

Group 4(G4): four animals each vaccinated subcutaneously (S/C) with 1ml of inactivated RVF vaccine adjuvanted with Montanide oil and will be challenged after one month of vaccination according to each inoculated S/C with 1ml $10^5 MLD_{50}$ /ml virulent RVF virus

Group 5(G5): Two animals control challenged each inoculated S/C with $10^5 MLD_{50}$ virulent RVF to compare between vaccinated and non vaccinated challenged.

Group 6(G6): three animals kept as non vaccinated control.

There is no elevation of body temperature of animals post vaccination as it was fluctuated between 39°C and 39.4°C during the observation period and was similar to that of the non vaccinated control group.

RVF virus was only reisolated from sera of vaccinated challenged sheep, but the virus was reisolated from sera, ocular, nasal and rectal swabs from animals of the control group which infected with the same challenge dose of virulent RVF virus.

The antibody started to appear in vaccinated sheep from the first week post-vaccination, reached its peak at the fifth month and persisted within the protective level till eleventh month when tested by ELISA, SNT as well as AGPT.

Also the antibody response in sheep vaccinated with the locally conventionally inactivated vaccine with alum gel adjuvant was studied whereas reach to the peak at 3rd month and still within the protective level till 5 month then started to decline at 6th month..

Also Montanide IMS 1113 can induce early immune response rather than the alum gel do and the immune response persisted for a long period of time so it can be used for vaccination programs to control RVF and prevent its sudden attack.

So, from this study we recommended the use of oil adjuvants in general and with a special case to Montanide IMS 1113 to increase the period of protective immunity in sheep.