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LIST OF ABBRIVIATIONS

A°	:	Angstrom
Ab	:	Antibodies
AEI	:	Acetyl ethelenimine
$AL(OH)_3$	:	Aluminum hydroxide gel
BAL	:	Bovine albumine
BEF	:	Bovine ephemeral fever
BEI	:	Binary- Ethylene-Imine
BHK_{21}	:	Baby Hamster Kidney cell line 21
CFA	:	Complete Freund adjuvant
CFT	:	Complement Fixation Test
CPE	:	Cytopathic Effect
DDW	:	Double Distilled Water
DOE	:	Double oil emulsion
dpv	:	Dayes post vaccination
ELISA	:	Enzyme Linked Immunosorbent Assay
FA	:	Formalin
FMD	:	Foot and Mouth Disease
FMDV	:	Foot and Mouth Disease Virus
GSLS	:	ginseng stem and leaf saponins
hr	:	hours
HS	:	Hemolytic system
IFA	:	Incomplete Freund adjuvant
IBR	:	Institute of biological Remo
I/P	:	Intraperitonial
ISA	:	Incomplete Seppic adjuvant
Iμ	:	International unite
Kb	:	Kilo base
KDa	:	Kilo dalton
LD_{50}	:	Lethal dose fifty
MEM	:	Minimum essential medium
MHD	:	Minimum Haemolytic Dose
M	:	Mole
MLD50	:	Minimum lethal dose fifty

6. SUMMARY

Regular Prophylactic vaccination of cattle and buffalo against Foot and Mouth disease virus and Bovine ephemeral fever virus has become an important input to maintain animal productivity and to reduce economic losses in Egypt.

Due to the economic losses caused by FMD and BEF viruses and advantages claimed to be offered by combined vaccines as it have many benefits for the manufacturer , administrator and for the animal health ,the present study was undertaken to evaluate the ability of prepared combined inactivated oil FMD+BEF vaccine contains FMDV serotypes circulating in Egypt (O, A, SAT2) to promote sustained protective immune response in calves following single dose application compared with individual trivalent FMD, BEF vaccines.

Three experimental batches of trivalent FMD, BEF and combined FMD /BEF vaccines were prepared. Viruses were inactivated by binary ethyleneimine and adjuvanted with Montanide ISA 206 oil for preparation of (W/O/W) double oil emulsion vaccines, prepared vaccines were proven to be sterile and free from bacterial and fungal contamination or viable viral residuals.

Susceptible calves free from either FMD or BEF antibodies were divided into three groups. First group were vaccinated with FMD vaccine, second group were vaccinated with BEF vaccine and the third group were vaccinated with combined FMD/BEF vaccine. Serum samples were collected from the all groups weekly for one month then every two weeks and tested for determination of antibody titers against either FMD or BEF antigens using SNT and ELISA until reaching un-protective antibody level.

The results of potency testing of the three prepared vaccines in vaccinated calves showed the following results:

1- Protective antibody titer against FMD antigens elicited by either trivalent FMD or combined FMD/BEF started between 2^{nd}, 3^{rd} weeks post vaccination, antibody titers

gradually increased attained maximum level up to 6^{th} and 8^{th} week and maintained at level considered protective for a period ranged between 32 to 38 weeks.

2- Protective antibody titer against BEF antigen elicited by either BEF or combined FMD/BEF vaccine started at 2^{nd} week post vaccination, attained maximum level at 8^{th} week and lasted at level considered protective for a period ranged between 40 to 42 weeks post vaccination.

3-Potency testing of combined FMD/BEF vaccine against virulent FMDV was performed in calves vaccinated then challenged with three homologous serotypes FMD viruses (O, A, SAT2) 21 days post vaccination showed 100% protection which associated with seroconvertion to the three serotypes.

4-statistical analysis of antibodies titers elicited by individual and combined vaccines showed no significant variation ($p < 0.05$) in the serological response elicited by individual trivalent FMD, BEF vaccines and combined vaccine containing four antigens.

In conclusion cattle could be safely vaccinated with FMD/BEF combined vaccine without impairing the immune response against both antigens. Vaccination of large number of animals against important viral diseases like FMD and BEF in country like Egypt involve high manpower and labor cost. The approach of combined vaccine is a more intelligent approach, as it would save labor cost as well as the cost of adjuvant.