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List of abbreviations

Binary ethylene amine	BEI
Bovine viral diarrhea	BVD
Bovine viral diarrhea virus	BVDV
Border disease virus	BDV
Cytopathic effect	CPE
Cell RNA	CRNA
Cod of federal regulation	CFR
Enzyme linked immunosorbant assay	ELISA
Hog cholera virus	HCV
Infectious bovine rhinotracheitis	IBR
Intra venous	I/V
Internal ribosome entry site	IRES
Madine derby bovine kidney	MDBK
Minimum essential medium	MEM
Mucosal disease	MD
National animal disease laboratory	NADAL
Non cytopathic	NCP
3'nontranslated region	3'UTR
Open reading frame	ORF
Parainflunza-3	PI-3
Persistent infected	PI
Polymerase chain reaction	PCR
Post vaccination	PV
Replicative intermediate	RI
Replicative form	RF
Revolution per minute	R.P.M.
Serum neutralization test	SNT
United state of America	USA
5untranslated region	5'UTR
Viral RNA	VRNA
50% tissue culture infected dose	$TCID_{50}$

summary

bovine viral diarrhea virus is economically important pathogen of cattle through the world. The present study was planned for preparation, evaluation inactivated bovine viral diarrhea virus vaccine contained genotype I&II and comparative with inactivated pneumo-3 vaccine contained BVDV,IBRV and PI-3V.

Vaccine prepared through propagation of the BVDV genotype I&II in madine derby bovine kidney cell culture (MDBK) and used BAI for inactivation at 0.02% concentration for 6 hours at 37^{o}c. add 20% alhydrogel as adjuvant.

The evaluation of prepared inactivated BVDV vaccine containing genotype I&II was conducted in laboratory as follows:

1. Sterility and purity testes:

these resulted were regulated through the American protocol, US code of Federal Regulations (CFR, 1997). The obtained results proved that the prepared vaccine were free from any bacterial, fungal and mycoplasma contamination as well it was proved that the prepared vaccine were free from other viral agent.

2. Safety test:

Safety test was performed on mice and guinea pigs and revealed that no clinical abnormalities were observed through 10 days of observation in mice and guinea pigs.

3. potency and challenge exposure tests:

The test were performed on fourteen cross breed calves (Friesian and local) about 6 month of age divided into two groups the result revealed that:

a. Vaccinated calves subgroup A :

No clinical finding were recorded in vaccinated calves up to one month post vaccination. the resulted of immune responses of calves post vaccination and the titer of neutralizing antibodies reached its peak at 2 months then begin to decline but remained protective till end of experiment.

b.Vaccinated challenged calves (challenge exposure test) subgroup B:

No clinical finding through out the challenged period and the immune response capable for protecting calves against experimental infection using virulent strain of genotype 1 and 2 of BVDv. the resulted of immune responses of calves post challenged, the mean of serum neutralizing antibody titers post challenge decreased at 3 day post challenged in which become 1.55 to genotype I and 1.50 to genotype II then titer where raised again till reached its peak at 21 days post challenge 2.25 genotype I, 2.15 genotype II.

c. The non vaccinated control infected calves subgroup c:

Showed high significant increase in the mean body temperature during the first eight days of challenge. The recorded body temperature

was 40.3oc on the 3rd day post infection and raised to 40.4 at the fourth day and reminded high till eight days. The temperature started to subside gradually from the 9^{th} day post infection and return to the normal on the nine day post infection. The observed clinical signs were dullness, off food, serous nasal discharge begin to appear with two days, faces become moisten and ocular discharge appeared. This previous symptoms lasted up to the 10^{th}-12^{th} days after which complete recovery occurred. serum neutralize antibody titers reach its peak at 28 day 1.95.

d. The non vaccinated, non infected control calves subgroup D:

Neither clinical sing nor humeral immune response could be detected in these calves.

3. Evaluation of prepared vaccine under field condition:

The test was done on pregnant cows at last third of gestation result reaveled that cow dams gave off springs immunized with BVDV genotype I&II antibodies within the protective level up to six months after delivery.

4.Comparative between inactivated bivalent vaccine containing genotype I&II and combined inactivated vaccine pneumo-3 containing (BVDV,BRV,PI-3V) revealed that bivalent vaccine give higher antibodies to BVDV than produced due to vaccination by combined inactivated vaccine pneumo-3 in cow dams and their off springs.