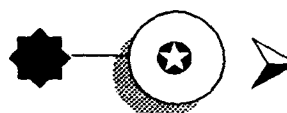
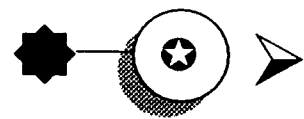


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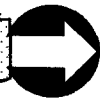




List of Abbreviation

BSA	:	<i>Bovine Serum Albumin</i>
CEYI	:	<i>Chicken Egg Yolk Immunoglobulins</i>
E. coli	:	<i>Escherichia coli</i>
ELISA	:	<i>Enzyme Linked Immunosorbent Assay</i>
ETEC	:	<i>Enterotoxigenic Escherichia coli</i>
H ₂ SO ₄	:	<i>Sulphuric Acid</i>
HCl	:	<i>Hydrogen Acid</i>
HPMCP	:	<i>Hydrogen Propyl Methyl Cellulose Phosphate</i>
HRP	:	<i>Horse Radish Peroxidase</i>
I/M	:	<i>Intramuscular</i>
Ig	:	<i>Immunoglobulin</i>
IgY or IgG	:	<i>Yolk Immunoglobulins</i>
mg	:	<i>milligram (10⁻³) 0.001 gm</i>
ml	:	<i>milliliter (10⁻³) 0.001 ml</i>
PAGE	:	<i>Polyacrylamide Gel Electrophoresis</i>
PBS	:	<i>Phosphate Buffer Saline</i>
PEG	:	<i>Polyethylene Glycol</i>
pH	:	<i>Hydrogen Ion Concentration</i>
TMB	:	<i>Tetramethyl Benzidine</i>
ZnSO ₄	:	<i>Zink Sulphate</i>
ZSTT	:	<i>Zink Sulphate Turbidity Test</i>
Vol.	:	<i>Volume</i>
μ	:	<i>Microliter</i>
°C	:	<i>Disintegrate</i>





6. Summary

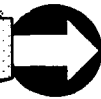
The present study was carried out to evaluate the protective potentials of egg yolk antibodies against *E. coli* K99 diarrhoea in new born calves.

A total number of 40 laying hens (Red Bovans, German) that proved to be free from *E. coli* K99 antibodies (ELISA titre < 1/160) were grouped into 4 groups each of 10 hens. Each of the 1st three groups were vaccinated by inactivated *E. coli* K99 vaccine according to special protocol, finally 10 hens were kept as control negative. Each bird received 0.5 ml of the attenuated bacteria at different sites of the breast muscle in the 1st scheme group, the injection was repeated at four weeks, eleven weeks and fourteen weeks after the first injection as boosting. In the 2nd scheme group, the injection was repeated at 6 weeks, fourteen weeks then every 2 months after the 1st injection as boosting.

In the 3rd scheme group, the injection was repeated weekly till 4 weeks, then eleven weeks, and fourteen weeks after the 1st injection as boosting.

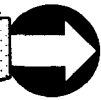
Blood samples (for serum separation) and eggs (for yolk preparation) were collected at different intervals of immunization.





Serum and yolk were used for estimation of total globulins (estimated by zinc sulphate turbidity test) and E. coli K99 antibodies (estimated by ELISA) then obtained results were as follow:

1. The result of zinc sulphate turbidity test indicated that the total globulins were progressively increased as a result of immunization in serum and yolk of hens and reached its maximum values at the 3rd week after the fourth immunization then maintained high till the end of this study. There was a strong positive correlation between serum and yolk globulin.
2. The E. coli K99 antibody titre was markedly elevated after the 1st dose immunization and continued to increase with boosting, reached its peak at the 3 weeks after fourth immunization (mean titre in the 1st scheme of injection of 13000, 12000 in serum and yolk respectively). Mean titre in the 2nd scheme of injection of 12000, 11000 in serum and yolk respectively. Mean titre in the 3rd scheme of injection of 11500, 11000 in serum and yolk respectively and then maintained high till the end of this study. The correlation between serum and yolk antibodies was strong positive indicating that hyper-immunization of egg yolk can be monitored and assessed by serum antibody titration.
3. The hyperimmune yolk was pooled diluted as recommended and defatted and administrated to three groups.
4. Field evaluation of protective effect of egg yolk: calves in the 2nd group received yolk only in milk from birth up to 14th days of age; while calves in the 1st group received colostrum only for the same period. The total body weight gain was markedly improved in calves



received colostrum during the neonatal period of life more than those received yolk.

5. The passive mice protection test proved that 100 % protection was obtained.
6. From the obtained results, it could be concluded that the egg yolk could be used in a large scale for protection against diarrhoea of calves due to E. coli K99 infection during the neonatal period.

