DRAFT REVISED MONOGRAPH FOR COMMENTS

This draft revised monograph contain text for inclusion in the Indian Pharmacopoeia (IP). The content of this draft document is not final, and the text may be subject to further revisions prior to publication in the IP. This draft does not necessarily represent the decisions or the stated policy of the IP or Indian Pharmacopoeia Commission (IPC).

Manufacturers, regulatory authorities, health authorities, researchers, and other stakeholders are invited to provide their feedback and comments on this draft proposal. Comments received after the last date will not be considered by the IPC before finalizing the monograph.

Please send any comments you may have on this draft document to lab.ipc@gov.in/ biologics-ipc@gov.in **before the last date for comments.**

Document History and Schedule for the Adoption Process

Description	**Details**
Document version	1.0
First Draft published on IPC website for public comments	24th July 2024
Last Date for Comments	6th September 2024
Monograph Revision proposed for Inclusion in	IP 2026
Tentative effective date of proposed amendment	January, 2026
Draft revision published on IPC website for public comments	NA
Further follow-up action as required.	

Egg Drop Syndrome'76 Vaccine, Inactivated

Definition

Egg Drop Syndrome'76 (Adenovirus) Vaccine, Inactivated consists of an emulsion or a suspension of a suitable strain of egg drop syndrome'76 virus (haemagglutinating avian adenovirus) which has been inactivated in such a manner that immunogenic activity is retained.

This monograph applies to vaccines intended for protection of laying birds against drop in egg production and/or for prevention of loss of egg quality due to adenovirus infection.

Production

Preparation of the vaccine

The vaccine strain is grown in embryonated hens or duck eggs or in suitable cell cultures (2.7.13). The vaccine may contain a suitable adjuvant.

Substrate for virus propagation

Embryonated hens' or ducks eggs.
If the vaccine virus is grown in embryonated hens or ducks eggs, they are obtained from suitable healthy flocks (2.7.18).

Cell cultures
If the vaccine virus is grown in cell cultures, they comply with the requirements for cell cultures for the production of vaccines for veterinary use (2.7.13)

Seed lots

Choice of vaccine composition

The vaccine is shown to be satisfactory with respect to safety (2.7.17) and efficacy (2.7.12) for the birds for which it is intended. The following tests for safety and immunogenicity may be used during the demonstration of safety and efficacy. The master seed lot complies with the tests for extraneous agents as described in the General monograph for Veterinary Vaccines (2.7.10).

Test for Identification

On inoculation into chickens, specific neutralizing antibody develops against egg drop syndrome'76 (adenovirus) which can be demonstrated by suitable serological test.

Sterility: Complies with the test for sterility (2.2.11)

Safety

The test is carried out for each route of administration to be recommended for vaccination. Use a batch of vaccine containing not less than the maximum potency that may be expected in a batch of vaccine. For each route of administration of the vaccine, use not fewer than 10 hens from SPF flocks (2.7.7) or healthy susceptible flocks (2.7.18), not older than the minimum age to be recommended for vaccination. Administer double of the normal dose of the vaccine by a route stated on the label. Observe the hens daily up to 14 days post vaccination. The test is not valid if

non-specific mortality occurs in more than 2 birds. The vaccine complies with the test if no hen shows abnormal signs of disease or dies from causes attributable to the vaccine.

Immunogenicity

A test is carried out for each route and method of administration to be recommended. For each recommended route use each case hens from an SPF flock (2.7.7) or healthy susceptible flock (2.7.18) and of the recommended age of vaccination. The vaccine administered to each hen is of minimum potency.

Vaccinate each of 2 groups of 30 hens with the dose and by the route stated on the label. Maintain 2 control groups, group 1 having 10 hens and the group 2 having 30 hens, of the same age and from same stock as the vaccinated groups. Maintain egg production records from point of lay until 4th week post challenge. At 30 weeks of age, challenge each hen from vaccinated group 1 and control group 1 with a quantity of egg drop syndrome′76 virus sufficient to cause a well marked drop in egg production and/or quality. The test is invalid unless there is a well marked drop in egg production and/or quality in the control hens. The vaccine complies with the test if the vaccinated hens show no marked drop in egg production and/or quality.

When the group 2 of vaccinated hens and the group 2 of control hens are nearing the end of lay, challenge these hens, as before. The test is invalid unless there is a well marked drop in egg production and/or quality in the control hens. The vaccine complies with the test if the vaccinated hens show no marked drop in egg production and/or quality.

Carry out serological tests on serum samples obtained at the time of vaccination, 4 weeks later and just prior to challenge. The test is not valid if antibodies against egg drop syndrome′76 virus are detected in any sample from control hens prior to challenge.

Manufacturer's tests

Identification

When inoculated into chicken, the development of specific neutralizing antibodies against egg drop syndrome '76(adenovirus) can be demonstrated by suitable serological tests.

Alternatively, identification on the final bulk lot by molecular techniques or immunochemical method using specific antibody is acceptable and can be used in the routine bulk lot release. Once this test is performed on the final bulk, it may be omitted on the final product.

Residual live virus

The test for residual live virus is carried out in embryonated ducks' eggs from a flock free from egg drop syndrome ′76 virus infection, (2.7.7) or in suitable cell cultures, whichever is the most sensitive for the vaccine strain. The quantity of inactivated virus harvest used in the test is equivalent to not less than 10 doses of the vaccine. The inactivated virus harvest complies with the test if no live virus is detected.

Batch potency test

It is not necessary to carry out the potency test for each batch of vaccine if it has been carried out using a batch of vaccine with a minimum potency. Where the test is not carried out, an alternative validated method is used, the criteria for acceptance being set with reference to a batch of vaccine that has given satisfactory results in the test described under Potency. The following test may be used.

Vaccinate not fewer than ten 14 to 28-day-old chickens from an SPF flock (2.7.7) or healthy susceptible chicken (2.7.7) with 1 dose of vaccine by one of the recommended routes. 4 weeks later, collect serum samples from each bird and from 5 unvaccinated control birds of the same age and from the same source. Measure the antibody response in a haemagglutination (HA) inhibition test on each serum using 4 HA units of antigen and chicken erythrocytes. The vaccine complies the potency test if the mean antibody titre of the vaccinated group is greater than 1: 128. The test is not valid if there are specific antibodies in the sera of the unvaccinated birds.

Batch test

Identification
When inoculated into chicken, the development of specific neutralizing antibodies against egg drop syndrome '76(adenovirus) can be demonstrated by suitable serological tests.
Alternatively, identification on the final bulk lot by molecular techniques or immunochemical method using specific antibody is acceptable and can be used in the routine bulk lot release. Once this test is performed on the final bulk, it may be omitted on the final product.

Sterility/ Bacterial and fungal contamination (2.2.11). The vaccine complies with the test for sterility

Safety. Inject intramuscularly a quantity equivalent to 2 doses into each of ten SPF chickens (2.7.7) or healthy susceptible chickens, 2 to 4 week old. Observe all chickens for 14 days. No abnormal systemic or local reaction is seen
Note: General Requirements shall be referred regarding omission of the batch safety test.

Potency
The vaccine complies with the requirements of the test prescribed under Manufacturer's test when administered by a recommended route and method.
Suitable *in-vitro* tests such as antigen content estimation can replace *in-vivo* potency test for batch release if a correlation is established between potency test and alternative test.

Labelling
The label must state that (1) the vaccine is for veterinary use only; (2) the recommended routes of administration; (3)the instructions for use, such as "the preparation should be shaken well before use (4) the animal species for which the vaccine is intended; (5) storage temperatures; (6) Batch Number, Manufacturing date and expiry date; (7) Total volume and number of doses; (8) Strain of virus used in preparing the vaccine (9) Route of administration.