PROTECTION AGAINST NEWCASTLE DISEASE VIRUS INDUCED DAMAGE TO CHICKEN OVIDUCT

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CERTIFICATE

This is to certify that the thesis entitled **"PROTECTION AGAINST NEWCASTLE DISEASE VIRUS INDUCED DAMAGE TO CHICKEN OVIDUCT"** submitted in part fulfilment of the requirements for the degree of **MASTER OF VERTERINARY SCIENCE** in **VETERINARY PATHOLOGY** to the Tamil Nadu Veterinary and Animal Sciences University, Chennai, is a record of bona fide research work carried out by Mr. **J.RAGHUL,** under my supervision and guidance and that no part of this thesis has been submitted for the award of any other degree, diploma, fellowship or other similar titles or prizes and that the work has not been published in part of full in any scientific or popular journal or magazine.

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ABSTRACT

Title	:	**PROTECTION AGAINST NEWCASTLE DISEASE VIRUS INDUCED DAMAGE TO CHICKEN OVIDUCT**
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The present study was undertaken to review the haemagglutination inhibition (HI) level required to protect Newcastle disease virus (NDV) induced damage to the chicken reproductive tract using the model of precociously induced oviduct in young chicks. One hundred and fifty white leghorn chicks of different immune status against Newcastle disease (ND) were raised through primary and secondary vaccinations. The oviducts of the birds from these groups were precociously induced with oestrogen and challenged intramuscularly with a standard challenge NDV. The challenged birds were sacrificed every 3 DPI and tissue samples from oviduct were evaluated by assessment of ciliary activity, histopathology (HP) and immunoperoxidase test (IPT). The various titres in all three groups

were further sub grouped as low ($<2^4$), medium (2^5-2^6) and high ($>2^7$) titres from which the results of ciliary activity assessment, HP and IPT were analysed. The $<2^4$ HI range and 2^5-2^6 range birds of the maternal group revealed ciliostasis till 6 DPI and 15 DPI respectively. The oviduct lesions for the same ranges, were seen in birds examined on each DPI till 6 and 18 DPI respectively. They were supported by IPT which detected antigen during those periods.

The 2^5-2^6 HI range of primary vaccination group showed microscopic lesions of oviduct till 12 DPI but in less number of birds. The ciliostasis and IPT exactly correlated for those periods. The 2^5-2^6 HI range of secondary vaccination group and the titre of 2^7 and above birds of all three groups were found negative by all the three methods.

Thus it could be concluded that a titre of 2^7 and above was required to protect direct damage of oviduct and a titre of 2^5-2^6 was found protective when derived through secondary vaccination. The assessment of ciliostasis as a measure of damage caused by the virus in the oviduct correlated well with HP and its practice could be coupled with the former in evaluating oviduct infections.

Keywords : Newcastle disease, HI titre levels, IPT, Oviduct protection