Investigation of the Efficiency of the Antigen Detection Enzyme Linked Immonosorbent Assay (ELISA), for Newcastle Disease Virus

by

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An antigen detection enzyme-linked Immunosorbent assay (ELISA) test, was developed at the Central Veterinary Laboratory, in Harare, and this test was validated in this investigation, by ascertaining the parameters of *Specificity, Sensitivity* and *Reliability.*

To achieve this, 216 mixed organs chicken samples, preserved in Triton - X (concentration of 0.1%) and a total of 110 ostrich cloacal swabs were tested for virus presence, using the ELISA test. Each sample was tested twice and results recorded.

The ELISA test method is based on the antigen detection Sandwich ELISA technique. In this method polyclonal antibodies raised against a live mesogenic vaccine strain, Komarov (Ondersterpoort Veterinary Research Institute, South Africa), are attached to the solid phase, at a constant dilution. Excess antibody is washed off, and antigen containing sample is added and allowed to react with the antibodies. The unbound material is washed off and labelled biotinylataed antibody is added, and unreacted conjugate washed off again. After this, the colour detection system is added (i.e.an avidin base system) and the amount of colour, in terms of optical density is measured.

Results were worked out as a ratio of optical density readings of wells containing anti-NDV antibodies and those obtained from normal rabbit antibodies reacted with the test sample. A ratio of >2.0 is indicative of a positive result.

Analysis of results showed that the ELISA test had a sensitivity of 91.4%, Specificity of 29.2% and Reliability of 92.59%, with respect to the virus isolation test, for the chicken samples. For the ostrich samples a reliability of 45.37% and specificity of 43.52% were obtained. The results for Sensitivity and Reliability in

chicken samples correlated well with a previous study using the same test, while there was a significant difference in the specificity results.