

Nairobi Sheep Disease (NSD) is caused by Nairobi Sheep Disease Virus (NSDV) of the genus *Nairovirus* of the *Bunyaviridae* family. The diagnosis of Nairobi Sheep Disease relies on the inoculation of tissue culture with suspensions of infected samples followed by identification of the virus using indirect immunofluorescent assay. The tests have a number of drawbacks including low specificity, visual reading of results which requires highly skilled expertise and the need for tissue culture facilities. This study was designed to develop capture ELISA in order to improve the diagnosis of Nairobi Sheep Disease in infected sheep. Nairobi Sheep Disease Virus was inoculated into baby hamster kidney (BHK-21) cells, harvested and purified through sucrose gradient method in an Ultra centrifuge at 4°C. The purified Nairobi Sheep Disease Virus was titrated to determine the best working titer for immunization of animals. The purified virus was subjected to IIFA test and fluorescence indicated the presence of Nairobi Sheep Disease Virus. The animals immunized were rabbits and goats which were used for production of antibodies for CELISA test. C-ELISA was set-up using anti-goat sera as the primary antibody, purified Nairobi Sheep Disease Virus as antigen and anti-rabbit sera as the secondary antibody. A 1:400 dilution was established as best dilution for true positive and negative samples. Twenty samples cryopreserved at -70°C, obtained from KARI were tested using both IIFA and C-ELISA test. The diagnostic specificity of the developed C-ELISA was estimated from 20 samples. Out of the twenty samples tested, four (20%) for Nairobi Sheep Disease Virus using C-ELISA and five (25%) were positive using IIFA. The four positive samples from the two tests were from the same samples. False positive (5%) samples were picked by IIFA, which was confirmed by tissue culture technique. The level of agreement between developed C-ELISA and IIFA used as a gold test was 95%, and the Kappa index was 0.86. The perfect agreement indicated by Kappa values is an indication that both tests can be used. However, C-ELISA is a better test in that it is more flexible and less subjective. The sensitivity and specificity of C-ELISA was estimated at 80% and 100% respectively. In conclusion, the high diagnostic specificity of the developed C-ELISA can be adapted to test a large number of samples over short periods of time. The test can be useful during outbreaks of Nairobi Sheep Disease without need for tissue culture facilities. The newly developed C-ELISA would facilitate epidemiological studies on Nairobi Sheep Disease infections and enable the diagnosis in the field.