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**AD:** Anno Domini.
**AGPT:** Agar gel precipitation test.
**AHA**: Animal Health Australia.
**BHK:** Baby hamster kidney.
**BPV:** Buffalo Pox Virus.
**CAMs:** Chorioallantoic Membrane.
**CaPVs:** Capri poxviruses.
**CMPV:** Camel Pox Virus.
**CPD:** Contagious Pustular Dermatitis.
**CPE:** Cytopathic effects**.**
**dsDNA**: double stranded Deoxyribonucleic acid.
**ECE:** Embryonated Chicken Eggs.
**EEV:** Extracellular Enveloped Virion**.**
**EFSA**: European Food Safety Authority.
**ELISA**: Enzyme linked immunosorbant assay**.**
**EM** : Electron microscope.
**FITC**: Fluorescein Isothiocyanate.
**FNES:** Fast, Non-Enzymatic and Simple.
**GTPV:** Goat pox virus.
**HA:** Haemagglutination.
**HAI:** Hemagglutination Inhibition Test.
**ICTV:** International Committee on Taxonomy of Viruses.
**IFAT:**indirect Fluorescent antibody technique.
**IMVs:** Intracellular Mature Virion.
**INR:** *international normalized ratio*.
**ITR:** Inverted terminal repeat.
**Kbp:** kilobase pairs**.**
**KDa:** kilodalton .
**LK :** lamb kidney.
**LSDV:** Lumpy skin disease virus.
**LT:** lamb testicle.
**LTy:** lamb thyroid .
**MAb :** Monoclonal antibody**.**
**MEM**: Minimum Essential Medium.
**MPCR:** multiplex polymerase chain reaction
**NA:** Nucleic Acid.
**Nm:** Nanometer**.**
**NVI:** National Veterinary Institute.

# 6- SUMMARY

Sheep pox is a highly contagious viral disease of small ruminants. Sheep pox virus (SPV) belongs to the *Capripox* virus genus of the *poxviridae* family and can cause significant economic losses in countries where they are endemic including Egypt. The present study was planned to detect the prevalence of SPV antibodies in unvaccinated and vaccinated sheep sera from three localities in Menofeia Province (Shebein El-Kom, Queesna and Berket El-Sabea) using SNT beside a trial for virus isolation and identification with the genotyping PCR that differentiate between SPV and GPV.

**The applied experiments revealed that:**

1. Screening by SNT was found that the number of positive sera were 108 (79.4%) from 136 total examined sera from vaccinated sheep. SPV neutralizing antibodies were detected in 82.6 % (38/46), 76.4 % (26/34), and 78.5% (44/56) of sheep sera in Shebein El-Kom, Queesna and Berket El-Sabea respectively. From the total positive samples (108), Berket El-Sabea presents 40.7 % (44/108), followed by Shebein El-Kom 35.2 % (38/108) and Queesna 24.1% (26/108).

2. The number of positive sera were 39 (60.9%) from 64 total examined sera from unvaccinated sheep. SPV neutralizing antibodies were detected in 61.9 % (13/21), 57.8 % (11/19), and 62.5% (15/24) of sheep sera in Shebein El-Kom, Queesna and Berket El-Sabea respectively. From the total positive samples (39), Berket El-Sabea presents 38.5 % (15/39), followed by Shebein El-Kom 33.3 % (13/39) and Queesna 28.2% (11/39).

3. All screened samples from vaccinated (108) posses a protective titers by SNT where 46.3 % (50/108) had a titer 64; 37% (40/108) had a titer 32 and 16.7% (18/108) had a titer 16.

4. From the total screened positive samples (39) from unvaccinated sheep sera, 53.8% (21/39) were below the protective titer while 38.5 % (15/39) had a titer 16 and 0.7% (3/39) had a titer 32 by SNT.

5. Trials for isolation of SPV from skin scabs samples of clinically suspected sheep, by three blind passages through CAM showed that only 12 from 20 skin scabs induced characteristic signs on CAMs after three successive passages. The CAMs were grayish, thickened and hemorrhagic. The pock lesions were detected in nine CAMs without lethality to the embryos on the $5^{th}$ day post inoculation.

6. It was noticed that IFAT detected SPV antigen in 9 of 12 infected CAM.

7. using PCR found that the primer targeted the PRO30 gene was succeeded to amplify the specific SPV products (151bp) from the extracted DNA products in two infected CAM that were positive by IFAT and failed to detect the target gene in the other 2 samples that were negative by IFAT.

# 7- CONCLUSIONS

From the obtained results in the present study it could be concluded that:

1- SPV antibodies were prevalent in vaccinated and unvaccinated sheep as assayed by SNT and this required a specific test kit to differentiate between vaccinated and infected sheep.

2- The PCR assay based on Primer targeted the PRO30 gene were test of choice for current testing SPV in infected CAM.

3- Recent SPV was isolated and circulated among the herds of sheep in Menofeia province and further molecular characterization and differentiation from the vaccinal strain was required.