Ali A, Kilany WH, Zain El-Abideen MA, El Sayed M, Elkady MF. Safety and efficacy of attenuated classic

and variant 2 infectious bronchitis virus candidate vaccines. Poultry Science 2018,

pey312, https://doi.org/10.3382/ps/pey312

Vaccination programs against infectious bronchitis virus (IBV) in Egypt depend on both classical and/or imported variant IBV strain vaccines. However, many IBV outbreaks associated with respiratory distress, nephropathy, and high mortalities were attributed to the circulation of both classical and new nephropathogenic IBV variant 2 strains. In the present study, we report the development of attenuated IBV candidate vaccines using the classic IBV strains (IBM41 and IB2) and a nephropathogenic strain (IBvar2). The wild-type (WT) viruses were attenuated through serial passages in embryonated SPF chicken eggs. Virulence of the attenuated viruses was then tested via the ocular route inoculation and the in vivo back passage in day-old SPF chickens. Efficacy against homologous challenge was investigated also in day-old SPF chickens. Results showed that the viruses were successfully adapted to the embryo by the 100th (IBM41 and IB2) and 110th passages (IBvar2). The attenuated viruses were safe and showed no change of virulence in day-old SPF chickens up to the 10th back passages. The efficacy experiment showed that the attenuated vaccines showed 90-100% protection against the homologous challenge based on ciliostasis score and protection percent. The att-IBM41 and att-IB2 vaccines were able to reduce the shedding of the challenge at 3 DPI and no virus shedding was detected in both vaccinated groups by 5 DPI. In the att-IBvar2 vaccinated birds only 20% of vaccinated birds shed the challenge virus with low titers (102.10±0.3 EID50/ml) at 3 DPI. In conclusion, the attenuated strains IBM41, IB2 and IBvar2 are efficient vaccine candidates against currently circulating classic and variant IB viruses, respectively. Further studies to evaluate the field efficacy and combining these attenuated IBV strains to induce a wider protection against heterogeneous IBV challenge are suggested.