

ISOLATION OF INFLUENZA A VIRUS AND PARAMYXOVIRUSES FROM SENTINEL DOMESTIC DUCKS

R. TUREK, M. GREŠÍKOVÁ, *B. TŮMOVÁ

Institute of Virology, Slovak Academy of Sciences, 817 03 Bratislava, Czechoslovakia;

*Institute of Hygiene and Epidemiology, Czechoslovak Influenza Centre,
100 24 Prague, Czechoslovakia

Received June 29, 1983

Summary. — One strain of influenza A virus (H4N6), three strains of Newcastle disease virus (NDV) and one strain of paramyxovirus (PMV) type 4 were isolated from tracheal and cloacal swabs of sentinel domestic ducks by inoculation of tested samples into the amniotic and allantoic cavities of chick embryos (CE).

Key words: influenza A virus, paramyxoviruses, sentinel domestic ducks

Infestation of free living aquatic birds by viruses belonging to the families *Ortho-* and *Paramyxoviridae* was proved in a locality of West Slovakia in the autumn seasons of 1977—1982 (Grešíková *et al.*, 1978; Turek *et al.*, 1983; Tůmová *et al.*, 1984).

The possible circulation of influenza virus and PMV was investigated in this locality from October, 1981 to May, 1982, by the use of juvenile domestic ducks. The ducks were placed into an enclosure so that they had access to a pond with many species of wild aquatic birds. From these sentinel ducks, tracheal and cloacal swabs were taken weekly and blood specimens in two week intervals, respectively. Virus isolations were carried out by a routine method on CE as described (Turek *et al.*, 1983). Identification of the isolated virus strains and serological examination were performed by haemagglutination-inhibition (HI) and neuraminidase-inhibition tests according to Palmer *et al.*, (1975).

As shown in Table 1, one strain of PMV type 4 was isolated in November, 1981, 3 strains of NDV in November, 1981, January and February, 1982, and one strain of influenza A virus (H4N6) in March, 1982. Sera of sentinel ducks, from which the viruses were isolated, had HI antibodies to the isolated virus strains, which rapidly disappeared. This finding as well as the reisolations performed to confirm the validity of isolated virus strains, excluded the possibility of laboratory contamination of investigated samples by NDV.

The isolation of influenza A virus (H4N6) indicates the probability of circulation of this subtype in the territory of West Slovakia. Influenza

Table 1. Isolation of influenza A virus and PMV from swabs and detection of HI antibodies in the sera of sentinel domestic ducks

Duck number	Virus isolation and titre of HI antibodies							
	Oct. 1981	Nov. 1981	Dec. 1981	Jan. 1981	Febr. 1982	March 1982	April 1982	May 1982
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	H4N6 16	8	8
4	0	0	0	NDV 16	32	0	0	0
5	0	PMV-4 16	64	8	0	0	0	0
6	0	0	0	0	0	0	0	0
7	0	0	0	0	NDV 64	16	16	0
8	0	NDV 128	32	32	32	32	16	16

0 = negative

A virus strains were first isolated from domestic ducks in East Slovakia in 1955 (Koppel *et al.*, 1956). At present, strains of the subtype H4N6 belong to the most frequently isolated influenza A viruses from ducks in Far East (Shortridge, 1982) and from aquatic birds in North America (Hinshaw *et al.*, 1980).

Besides of influenza virus, PMV type 4 was also isolated. This serotype had been found for the first time in Europe in 1978—1979 during a long-term influenza programme lasting from 1978 to 1982 (Tůmová *et al.*, 1984). The presence of influenza A viruses and PMV in swabs of aquatic bird species confirms their common circulation in nature, an exposure of sentinel domestic ducks appearing to be a good method of their detection all the year round (Sinnecker *et al.*, 1982).

References

- Grešíková, M., Tůmová, B., Štumpa, A., and Sekeyová, M. (1978): Isolation of influenza virus from wild ducks (*Anas platyrhynchos*). *Acta virol.* **22**, 296—301.
- Hinshaw, V. S., Webster, R. G., and Turner, B. (1980): The perpetuation of orthomyxoviruses and paramyxoviruses in Canadian waterfowl. *Can. J. Microbiol.* **26**, 622—629.
- Koppel, Z., Vrtiak, J., Vasil, M., and Spiesz, S. (1956): Hromadné ochorenie kačenic na východnom Slovensku, prebiehajúce za príznakov infekčnej sinusitídy. *Veterinárství* **6**, 267—268.
- Palmer, D. F., Coleman, M. T., Dowdle, W. R., and Schild, G. C. (1975): Advanced laboratory techniques for influenza diagnosis. *Immunology series* no. 6., U.S. Department of Health, Education and Welfare, Washington, D.C.

- Shortridge, K. F. (1982): Avian influenza A viruses of southern China and Hong Kong: ecological aspects and implications for man. *Bull. Wld Hlth Org.* **60**, 129—137.
- Sinnecker, H., Sinnecker, R., and Zilske, E. (1982): Detection of influenza A viruses by sentinel domestic ducks in an ecological survey. *Acta virol.* **26**, 102—104.
- Túmová, B., Turek, R., Kubínová, I., Štumpa, A., and Čiampor, F. (1984): Incidence of paramyxoviruses in free-living birds in 1978—1982. *Acta virol.* **28**, 114—121.
- Turek, R., Túmová, B., Mucha, V., and Štumpa, A. (1983): Type A influenza virus strains isolated from wild ducks in Czechoslovakia during 1978—1981. *Acta virol.* **27**, 523—527.