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MONITORING OF BOVINE VIRAL DIARRHOEA VIRUS INFECTION IN WILD RUMINANTS AND IN CATTLE BY PCR ON FAECAL SAMPLES: A PRELIMINARY STUDY

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Bovine Viral Diarrhoea Virus (BVDV) is a Pestivirus responsible for severe economic losses in cattle farms and it has also been discovered in some wild ruminants. Blood, milk, saliva, ear notch and tissue samples are usually used for diagnosis of BVDV infection in cattle [1]. However, these samples could be not easily collected when wild ruminants or beef cattle are tested.

The aim of this work was to investigate if BVDV can be detected by PCR in fecal samples from wild ruminants and cattle.

Fecal samples (n=60) were collected in 2 bovine farms with a history of seropositivity for BVDV-1 (A, n=40; B, n=20). In addition, faecal samples from red deer (Cervus elaphus, n=16), Appennine chamois (Rupicapra pyrenaica ornata, n=13), fallow deer (Dama dama, n=6), and roe deer (Capreolus capreolus, n=5) were collected from the environment. RNA was obtained from pool samples (10 individual samples = 1 pool) of bovine faeces and from individual samples from wild ruminants. Aliquots of faecal samples were stored at 4°C and tested after 3 months. Real time PCR for Pestivirus [2,3], nested PCR for BVDV [4] and PCR for 5’-UTR sequencing [5] were carried out.

BVDV-1 was detected in all 4 pool samples from cattle in farm A, in 4 samples from red deer, in 3 samples from chamois and in one sample from fallow deer. Positive results were obtained also by the faecal samples stored and tested after 3 months. The sequences obtained showed highest identity with BVDV-1 types 1a and 1c.

These preliminary findings suggest that faecal samples can be used for monitoring the molecular epidemiology of BVDV-1 in cattle and in wild ruminants. This approach allows to perform diagnosis of BVDV-1 infection in situations where is not possible to catch nor to kill the animals, such as in protected environments.

Further investigation are required for evaluating the sensitivity of the method and for detecting BVDV-1 types infecting wild ruminants in Italy.