Annotation:

The recently raised awareness of the threat of a new influenza pandemic has stimulated interest in the detection of *Influenza A viruses* in human as well as animal secretions. A novel virus isolation and multiplex reverse transcription – PCR (RT-PCR) assay was developed to allow in one test detection of multiple viral infections. Many of previously described PCR methods are sensitive, but only for specific species. I have used a specific set of primers, based on highly conserved region of the matrix gene for typing *Influenza A virus* and specific flu primers for influenza subtyping. The total amount of samples was 205 and I have detected 8 samples (3.9%) of *Influenza A virus*. Seasonal variations in the rates of detection of the different organism were observed, as was expected from the literature.

There are three methods used for the isolation of total RNA. Concluded, the best results were achieved by Qiagen, very good results were achieved by purification with Chelex – 100. It was not acquired any applicable RNA by Trizol method.

Series of circular vectors, containing fragments of H5 and M gene, were prepared entirely from cloned cDNA and sequenced. The use of these vectors enabled us to prepare vaccines, dissects a studying from influenza pathogenesis and it allows highly efficient generation of clones without technical limitations as well.