



## **Cell culture-based diagnosis of notifiable viral diseases in rainbow trout populations to make a SPF rainbow trout farm**

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### **Abstract**

Fast-growing aquaculture regardless of the health infrastructure especially uncontrolled transportation of eyed eggs, broodstocks, fingerlings and ornamental fish has led to the spread of viral diseases in the country and numerous cases of viral mortality and economic losses are reported. The project aims to select the populations of rainbow trout brood stocks free of three notifiable viruses including viral hemorrhagic septicemia (VHS), infectious hematopoietic necrosis (IHN) and infectious pancreatic necrosis (IPN) in order to produce high health fingerlings and then Specific Pathogen Free (SPF) fish in the next generations. The specimens of kidney, spleen, gills, sperm, eggs and fingerling were collected from the farms with no viral diseases Occurrence in their history. Fourteen farms from the West Azarbaijan, Kohkiluyeh and Boyer Ahmad and Mazandaran provinces were selected for investigation by the Cell culture, RT-PCR and IFAT methods. Samples were transferred to the virology laboratory of Inland water aquaculture institute using liquid nitrogen. The tissue filtrates were



inoculated onto BF2 and EPC cell lines and monitored for 7 days. In the case of cellular damage (CPE), RT-PCR and indirect florescent antibody tests were performed on positive specimens. Among the investigated farms six farms were IHNV positive and another one had simultaneous contamination to VHSV and IPNV. Finally seven populations were diagnosed free of these three diseases and were transferred to the pre-quarantine center located in Tonekabon. In the follow-up, the aforementioned diseases were monitored in the pre-quarantine center before reproduction and a VHSV infected population was eliminated before the beginning of the reproduction season. A total of 6 populations are maintained in the pre-quarantine center to support the quarantine center. The quarantine center will provide SPF fingerlings to support the trout industry in the country.

**Keywords:** Rainbow trout, VHSV, IHNV, IPNV, Viral diseases, SPF