Evaluation of killed vaccine efficacy against Viral Nervous Necrosis Disease (VNND) in terms of antibody titer, Super Oxide Dismutase (SOD) and Lysozyme parameters changes on *Acipenser stellatus*

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Abstract:

Viral Encephalopathy and retinopathy (VER) that known as viral nervous necrosis is called a neuropathy situation can effect on several species of fishes and can cause with some viruses of Nodaviridae family. In this study, production and evaluation of killed vaccine for this disease were done by inactivation of the causative agent of the disease using the conventional method (heated inactivation) in *Acipenser stellutus* as a laboratory model to control and prevention of this fetal disease in the Caspian Sea region. This research was done as the first time in the country and for sturgeon fish in the world. Given the high numbers of abandoned fish and the low rate of return of sturgeon, it is important to understand the importance of immunization before release to increase the population of these valuable fish. Increasing development of cage culture and the possibility of transmission of this disease from wild fish to farmed fish, the importance of developing an effective vaccine against this disease is doubled. There is no research vaccine for this serotype in the country so far and an effective commercial vaccine for the disease is not currently available in the world.The purpose of this study was to find an effective vaccine to increase survival and increase the number of economical sea fish. Immune response was evaluated through IgM assay by ELISA (Enzyme-Liked Immune Sorbent) kit Also, SOD and Lysozyme changes were calculated by their special kits. These three results have correlation with each other which employed for the evaluation of the vaccine efficacy. According to the above, this research has attempted to take an effective step in improving the population and viability of commercial fish by constructing and evaluating the effectiveness of the killed VNN vaccine.

Keywords: killed vaccine, efficacy, Viral, Nervous Necrosis, disease