SUMMARY

Rainbow trout (*Oncorhynchus mykiss*) is one of the most important fish species produced in Europe, including Poland. Economic losses in fish production result from, among others, mortality associated with the occurrence of infectious diseases. Infectious pancreatic necrosis virus (IPNV) is one of the most common viral agents, while *Yersinia ruckeri* (*Y. ruckeri*) is one of the most common bacterial pathogens affecting this species. In the prevention and treatment of infectious diseases, knowledge of the epizootic situation, as well as accurate diagnostics is extremely important.

The presented work describes the results of research aimed at assessing the occurrence of *Y. ruckeri* and IPNV on trout fish farms in north-eastern Poland and evaluating the impact of IPNV infection on the pathogenicity of *Y. ruckeri*. The presence of *Y. ruckeri* was confirmed in three out of seven fish farms. IPNV was also isolated in one of them. Isolated *Y. ruckeri* strains were serotyped and biotyped. Selected *Y. ruckeri* gene fragments were sequenced. The obtained results indicate high homology of the obtained strains.

Many literature reports are describing the main pathogens of rainbow trout. Mostly they are related to single infections. In natural conditions, however, we are more often dealing with mixed infections that are relatively poorly understood. The subject of this PhD dissertation is primarly an attempt to determine the relationship between IPNV infection and *Y. ruckeri* pathogenicity. Two experimental trials were carried out. In the first one, a change in the parameters of non-specific immunity was determined when the infection with IPNV and *Y. ruckeri* occurs at the same time. In the second experiment, IPNV infection was carried out two weeks before *Y. ruckeri* infection. A differentiated effect on the parameters of the non-specific immune response has been demonstrated between single infections with IPNV or *Y. ruckeri* and co-infection including these pathogens.

It is difficult to unequivocally determine the impact of IPNV infection on the pathogenicity of *Y. ruckeri*, however, reduced parameters of non-specific response such as the potential killing and metabolic activity of phagocytes as well as the level of lysozyme in the course of co-infection in the first experiment may indicate a synergistic effect when infection with both factors occurs in a similar time.