

## DEVELOPMENT OF AUTOGENOUS VACCINE OF *STREPTOCOCCUS AGALACTIAE* FOR HYBRID TILAPIA FROM ISOLATION TO THE FIELD

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**S***treptococcus agalactiae* is one of the major disease problems affecting farmed tilapia worldwide, usually for fish that are 300-600 g in average weight. This results in a significant economic loss for farmers. Affected tilapia commonly present with an irregular behavior associated with anorexia, exophthalmia, ascites and erratic swimming. It also causes septicemic disease, affecting organs such as the brain, kidney and gut, among others. The vaccination strategy is the most important measure for the control of streptococcosis in fish. Nevertheless, vaccine efficacy may vary due to the existence of different serotypes and the genetic profiles of circulating strains. Thus monitoring, by laboratory diagnosis, is essential to understand the prevalence of serotypes and genetic profiles existing in the country, which directly informs the relative importance of using local bacteria and development of autogenous vaccines. In this study, an autogenous vaccine for hybrid tilapia (*Oreochromis niloticus* x *O. aurea*) was developed against local species of *Streptococcus agalactiae*. The entire progress, from field sampling of the pathogenic bacteria until field application of the vaccine, is described. This includes the isolation and identification of the bacteria, the establishment of a seed lot system including preparation of master seed and working seed, the fermentation process, inactivation of the antigen and vaccine preparation. Six different emulsions were prepared in order to compare two different adjuvants at three different antigen titers. The laboratory quality control methods and residue of formalin are also presented. Safety and efficacy trials were carried out for all six emulsions. Based on the efficacy results; one of the preparations was selected as an autogenous vaccine for full-scale production. The product was tested for onset of immunity, duration of immunity and stability. Following the tests, it was used in a commercial farm of tilapia in Israel.

### Biography

Yechiam Shapira has completed his MSc at the Hebrew University in Jerusalem, in fish health and fish genetics. He has published one article in Aquaculture magazine, and was involved in two others. He worked as the Fish Health Manager in different farms in Israel and in Mexico for the last 30 years. His experience includes fresh water species, marine species and ornamental fish, growing on land and in cages in the sea. He was the president of The Israeli Society of Aquaculture and Biotechnology for four years. In the last 4.5 years, he is a Senior Researcher in Phibro Aqua, a division of Phibro Animal Health Corporation.

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