

Title

OraVax

Clay Microencapsulation of Non-infective Pathogens for Oral Vaccine Development

Overview

As with any type of farming, aquaculture's viability and profitability depend on the volume and quality of the yield. This requires, among other things, that the fish be free from **disease to prevent** fish deaths that in turn **reduce** harvest. **Factors** that cause **disease among** fish **include** poor water quality, high density (overcrowding), high water salinity, and the presence of predators such as snails and birds.

There are available vaccines, **which are** administered to the fish by injection, immersion, or oral administration, each having its own advantages and limitations. **OraVax involves** a process that yields an oral vaccine for fishes that provides both long-term immunization for the fish and ease of administration for the farmers. The technology can also be further improved and applied to other species of livestock.

Key Features

The **technology** makes use of a process that enhances the effectiveness of the oral vaccine through the clay microencapsulation of the antigen. The clay protects the antigen so that it **remains** intact when it reaches the fish's hind gut, where immunization takes place more effectively. The vaccine can be incorporated into fish pellets to make administration easier. Compared to fish oral vaccines **available** in the market, **OraVax** is more effective **owing to** the process of microencapsulation.

Applications

Veterinary drug development, and fish feed manufacturing.

User/Customer Edge

Available vaccines are administered to the fish **by** injection, immersion, or oral administration. Administration by injection **is tedious and may even cause stress** to the fish. Immersion allows fingerlings to be vaccinated at an early stage but **requires more time and effort** compared to oral vaccination. However, oral vaccines in the market **are known to be less effective because they provide only short-term protection.**

The technology **offers** an alternative way for vaccinating fishes by combining the advantages of injection and oral vaccines **and** eliminating their disadvantages. This oral vaccine **eases** administration **and reduces** labor and costs. Overall, it can provide users **with higher yields and profits.**

Market Opportunities

Aquaculture is practiced to supplement the **natural supply of fish**, which is **not sufficient** to serve the growing global population. While the **fish supply** harvested from the oceans and seas through traditional fishing has remained at a constant level, many countries now rely on aquaculture to meet demand. Introducing a vaccine that will protect cultured fishes from **disease is highly** advantageous **and can** enable farmers to maximize their **harvest.**

Inventors

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