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GD\V DQG PRQLWRUHG IRU VHUXP DQWLERG\ SURGXFWLRQ XS WR GD\V SRVW Y
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DQG “ IROORZHG E\ WKDW IURP IUHH FHOO YDFFLQDWHG “
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Keywords:Bio lm vaccine;Aeromonas hydrophila; Enzyme Linked Immunosorbant Assay; Labeo rohita

Introduction

Culture of Indian major carps (IMC) contributes more than 80% of the total aquaculture production in Indiabeo rohita (rohu) with its high consumer preference and good growth rate, it is widely cultured in Indian subcontinent [1-3]. ere has been a phenomenal shi from extensive to intensive culture of carps in the last three decades. Intensive aquaculture o ers an increased opportunity for spreading of infectious diseases at all stages of production [4]. Among the bacterial pathogens Aeromonas hydrophila is a ubiquitous secondary pathogen of IMC including rohu. Several instances of infections with hydrophila in India have been reported in IMC in recent past [5] hence; vaccination of aquacultured sh is becoming inevitable with increasing health risks.

Since, the aim of vaccination is to increase the immune memory/ humoral antibody response against the speci c antigen, the detection of these speci c antibodies is very essential to evalua3IgtAAs7c aSp.aa

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e sensitivity of ELISA is observed to be much higher compared to the agglutination titers. e ELISA was able to detect speci c antibodies at higher serum dilutions at 1:1000 as compared with lower detection limits of the agglutination assay, which could show the positive reaction at 1:256 and 1:64 in bio lm and free cell vaccinated sh serum respectively. e results are in agreement with the previous studies of Furuta et al. [15] where they reported the sensitivity of ELISA was six times higher in detecting ounder immunoglobulins than agglutination assay and Yoshimizu et al. [20] reported the sensitivity of ELISA to be several times higher than agglutination assay.

We have shown that the sh vaccinated orally with bio lm of A.hydrophila, showed elevated antibody titer as well as a good protection against the virulent A.hydrophila challenged via intra peritoneal injection. e increased antibody titer and protection against challenged bacteria in bio lm vaccinated sh is due to the property of bio lm, not being destroyed by the digestive enzymes and being available in large quantity to the lymphoid organs of sh to develop adaptive immune response against the antigen, which is also evident in previous studies [12,13]. Furthermore, the failure to produce enough speci c antibodies in free cell vaccinated group is due to the destruction of the antigen by digestive enzymes before reaching the hind gut [12,13]. e immune stimulatory role of chitin, added along with the bio lm vaccine may not be denied, as chitin can enhance the innate immune response of the sh [21] which ultimately might have led to the adaptive response to produce increased antibody titer. But, the role of chitin in enhancing the immune response along with bio lm needs a detailed study.

With the above results, we conclude that the bio lm oral vaccine can be e ciently employed in the culture system to overcome the infectious diseases and ELISA is much more sensitive in detecting speci c serum antibodies in vaccinated sh serum. So, it can be used as a tool to evaluate the e cacy of vaccines.

Acknowledgment

7KH ¿QDQFLDO DVVLVWDQFH IURP WKH ,QGLDQ FRXQFLO RI $JULFXOWXUH 5HVHDUFK LV gratefully acknowledged. Thanks to CIFE, Mumbai, for providing Fellowship to pursue my masters. Help from, Dr Honnananda, Mr. Abhiman and Mr. Ashok (Field assistant) is greatly acknowledged.

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