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## Bacterial ghost: Novel approach of vaccine delivery in aquaculture

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The purpose of vaccination is to enhance the immune system of an animal and recognize pathogenic agent to reduce the severity of a disease. Oral vaccination technique like; killed pathogen, bacterial ghost, subunit, attenuated vaccine are in use at present. Among which, heat killed and attenuated vaccine often results altering the antigenic site or epitope. Though, the use of subunit vaccine is projected as substitute for the heat killed and attenuated vaccine and can be easily produced by expression of gene of interest in a host cell but its use in aquaculture is less it is mainly due to its poor immunogenic property and animals are not exposure to natural state of pathogenic part. Hence new approaches or methods should be developed to improve the vaccination in fish. The bacterial ghost system is one such vaccine. Bacterial ghost (BGs) is mainly derived from gram negative bacteria. BGs provide intrinsic adjuvant property to the animal and delivery system for drugs and DNA vaccine etc. Bacterial ghost can be produced by expression of gene E (bacteriophage phiX174) in a target cell. BG of *Edwardsiella tarda* administration to olive flounder (*Paralichthys olivaceus*) has found to be effective in preventing or protecting the fish from edwardsiellosis. The administration of BG via oral, immunization and immersion are effective in reducing the diseases in fish. Hence Bacterial ghost is a novel vaccine candidate and a delivery system. It also provides natural adjuvant property, easy manufacturing, low production costs, and excellent safety profile. Hence, it is a promising technology for the development of more efficient vaccine in aquaculture practices.

### Biography

Dr.Sontakke U. B. has completed his B.V.Sc & A.H. with distinction from Maharashtra Animal and Fishery University Nagpur and doing post-graduation studies from National Dairy Research Institute, Karnal, Haryana (India). He has consistent academic record with distinction. He has been awarded as Junior Research Fellow by Indian Council of Agricultural Research. He is member of veterinary Council of India (VCI) and member of Animal Nutrition Society of India (ANSI). He has published two papers and five abstracts in International conferences and has been invited for oral presentation.