

ViVac UPM Aquafeed Vaccine

PATENT NO. PI2021000105



Figure 1. Unvaccinated (above) and vaccinated (below) hybrid grouper *Epinephelus fuscoguttus* × *E. lanceolatus*.

BRIEF TECHNOLOGY

ViVac UPM aquafeed vaccine is a feed-based *Vibrio* vaccine against multiple species of *Vibrio* that should be given according to the recommended regimen. It is a new feasible way for fish immunization against vibriosis through feeding. This oral vaccine is unique in terms of its cost-effectiveness, easy delivery and safe to the environment.

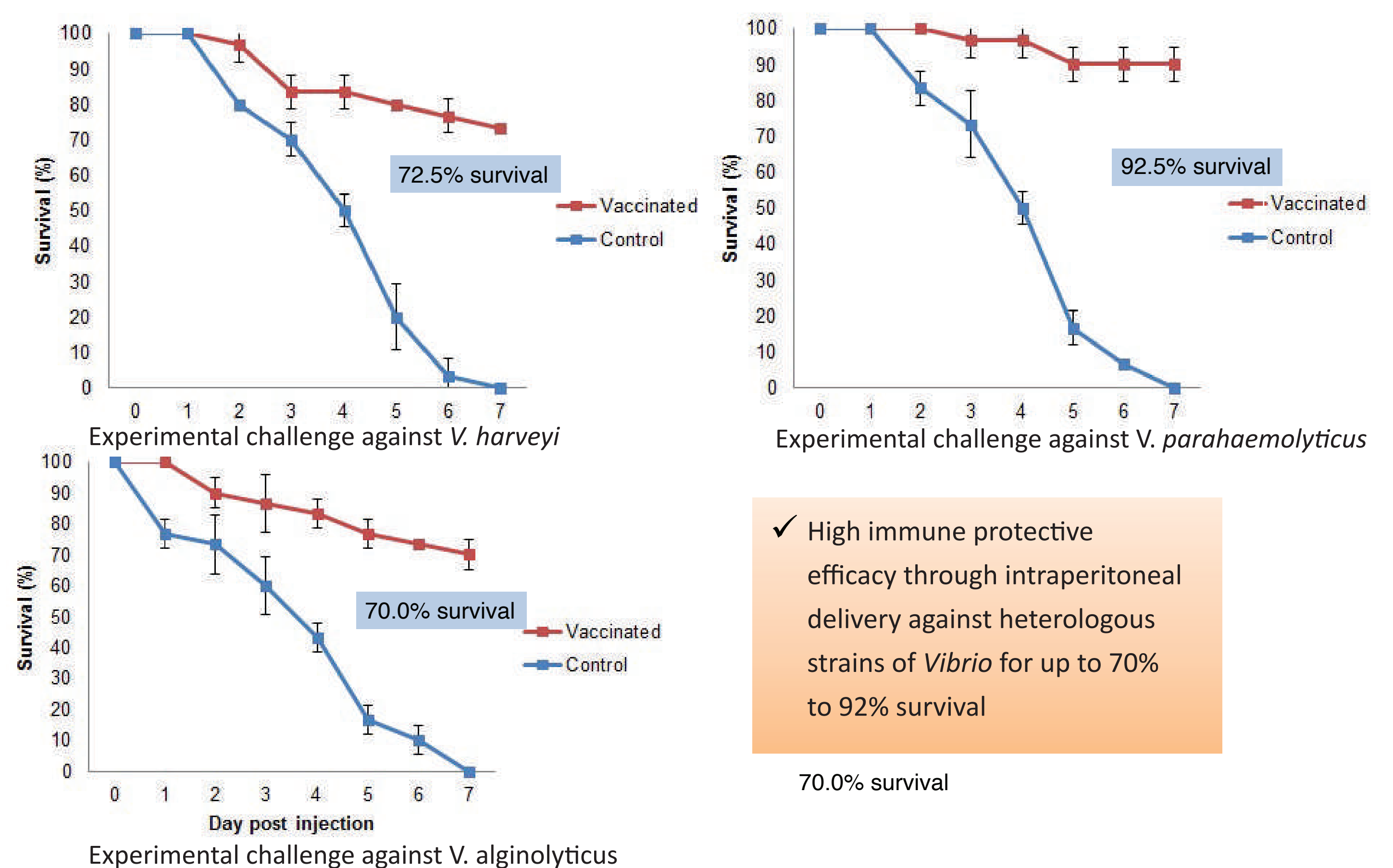
PROBLEM STATEMENT & CURRENT ISSUES

- Generally, most vaccines were administered by injection (IM or IP) which require trained personnel, handling of fish, costly and time-consuming.
- Not only that, all existing *Vibrio* vaccines are monovalent and only effective against specific *Vibrio* strain, but not against other *Vibrio* spp.
- Besides, some of these vaccines use commercial adjuvants, which contributes to the high cost of vaccine preparation and price.

INVENTIVENESS & NOVELTY

- ViVac UPM is a feed-based vaccine, which is administered orally through feeding. Therefore, trained personnel are not needed, no fish handling is required, and the fish could be vaccinated in a short period of time.
- This vaccine uses locally isolated *V. harveyi* strain *VH1* as the antigen. It has been shown that the strain provides cross-protection against other species of *Vibrio*, including *V. harveyi*, *V. parahaemolyticus*, *V. alginolyticus* and *V. damsela*. Thus, with one vaccine, infection by multiple *Vibrio* spp. is controlled or significantly reduced.
- The vaccine uses palm oil as adjuvant. Locally abundance palm oil contains high level of vitamin E that is instrumental in enhancing the efficacy of this feed-based vaccine. The cheap palm oil will eventually result in cheaper vaccine.

TRL : 7 - Demonstrated in operational environment



USEFULNESS & APPLICATION

ViVac UPM aquafeed vaccine provides cross-protection against several species of pathogenic *Vibrio* spp. that found frequently in marine fish culture of many Asian countries. This vaccine is recommended to be administered orally using our suggested regimen for better protection. This should solve the issues of using injectable vaccines faced by small to medium holding farmers in Asia.

IMPACT OF THE PRODUCT

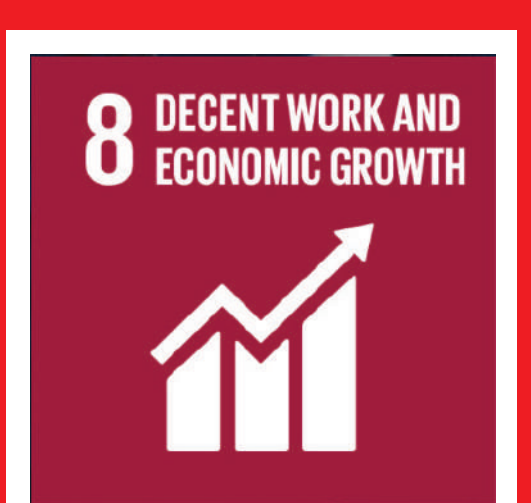
- ✓ Easy to use
- ✓ Cost-effective
- ✓ Highly-effective
- ✓ Improve disease prevention
- ✓ Stimulate antibody production
- ✓ Improve growth performance
- ✓ Improve farms' production

MARKET POTENTIAL

- Aquaculture industry, specifically marine fish farming (small or commercialized) in Malaysia and other Asian countries.



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