



SALEM MICROBES

FARMING WITH PROFITS

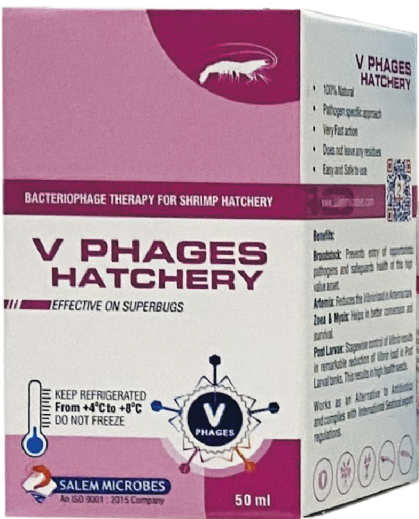
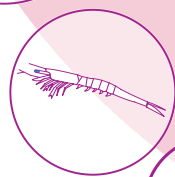
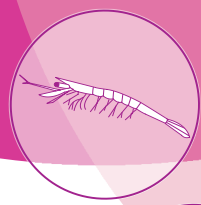
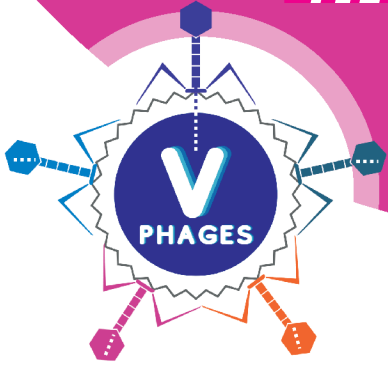


BACTERIOPHAGE THERAPY FOR SHRIMP HATCHERY



V PHAGES HATCHERY

EFFECTIVE ON SUPERBUGS



One Health unified approach for balanced welfare of people, animals and ecosystems.



ONE HEALTH APPROACH



SALEM MICROBES PRIVATE LIMITED
www.salemmicrobes.com



BACTERIOPHAGE THERAPY FOR SHRIMP HATCHERY



V PHAGES HATCHERY is a cocktail of Phages isolated from Natural environment. Hence they are safe on aquatic animals, people and ecosystems. This destroys pathogenic bacteria which are even resistant to antibiotics and increases the efficacy of probiotics.

CONTENTS: Lytic Bacteriophage of total 10^{10} PFU/ML
(PFU - Plaque Forming Units)

"V PHAGES HATCHERY" targets against most common pathogenic *Vibrio species*

- ◆ *Vibrio parahaemolyticus*
- ◆ *Vibrio alginolyticus*
- ◆ *Vibrio harveyi*
- ◆ *Vibrio campbellii* and other pathogenic *Vibrio sp.*

EFFECTIVE ON SUPERBUGS

BENEFITS:



Broodstock:

Prevents entry of opportunistic pathogens and safeguards health of this high value asset



Artemia:

Reduces the *Vibrio* load in Artemia tank



Zoea & Mysis:

Helps in better conversion and survival.



Post Larvae:

Stagewise control of *vibrio* results in remarkable reduction of *vibrio* load in post larval tanks. This results in high health seeds.

Works as an Alternative to Antibiotics and complies with International Seafood export regulations.

SALIENT FEATURES

100 % Natural

Pathogen specific approach

Very Fast action

Enhances Probiotic performance

Easy & Safe to use

Does not leave any residues

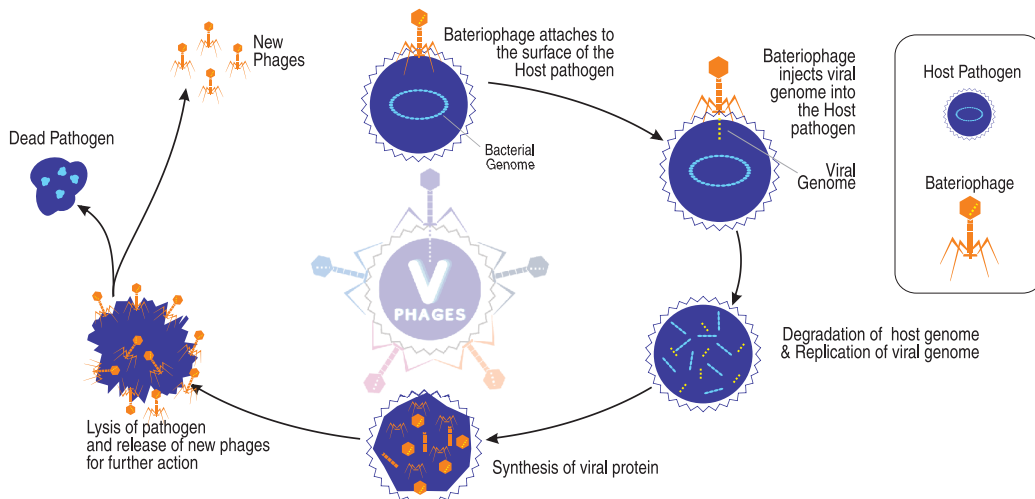
BEST APPROACH TO CONTROL PATHOGENIC VIBRIOS

V PHAGES HATCHERY ✓✓

PROBIOTIC ✓

SANITISER X
DISINFECTANT XX
ANTIBIOTICS XXX

ILLUSTRATION OF ACTION OF PHAGE ON A TARGET BACTERIA

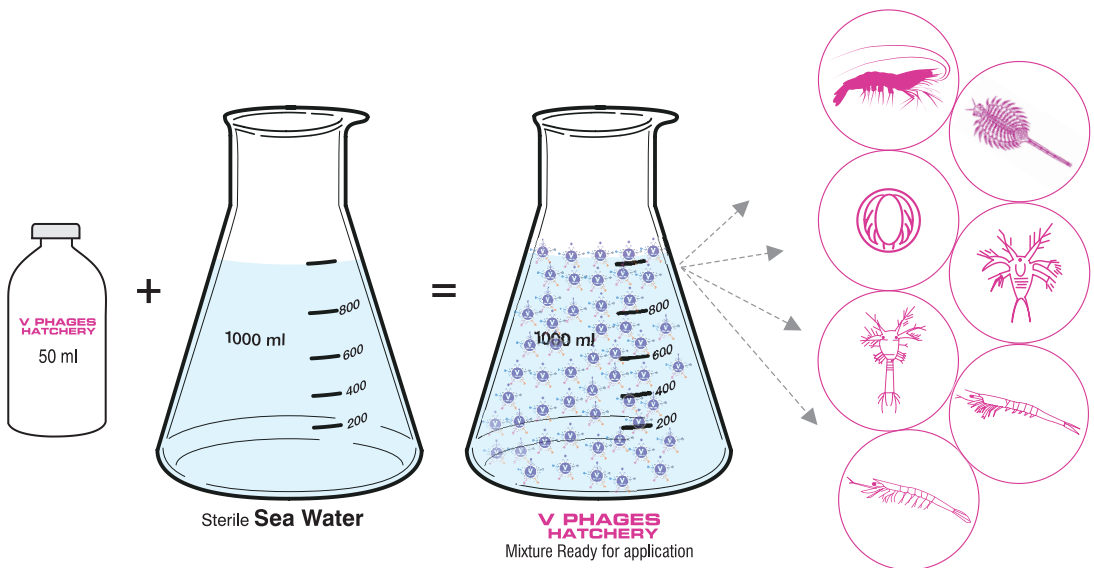


BACTERIOPHAGE THERAPY FOR SHRIMP HATCHERY

Dosage Chart:

1 vial of "V Phages Hatchery" to be reconstituted in 1 L of sterile sea water. After reconstitution, use it as per dose chart. Table shows the dose of reconstituted 1 L volume of "V Phages Hatchery Mixture".

Hatchery Section	Water Volume (Ton)	"V Phages Hatchery Mixture" Dose (ml)	Time of Application	Dose
Outdoor algae Tank	1 ton	25 ml	Before algae inoculation	1 single dose
Artemia Hatching Tank	1 ton	500 ml	After 1 hr of stocking	1 single dose
Artemia Storage Tank	1 ton	100 ml	Before feeding	1 single dose
Brood stock Tank	1 ton	5 ml	After water exchange	Every day
Spawning Tank	1 ton	50 ml	Before transferring the Gravids	1 single dose
Nauplii Hatching Tank	1 ton	2 ml	Before stocking of eggs	1 single dose
Larval Rearing Tank	1 ton	10 ml	1st dose, before stocking of Nauplii	Every day
Post Larvae Rearing Tank	1 ton	10 ml	1st dose before transferring the PL	Every day after water exchange
PL Packing water	1 ton	10 ml	Before Packing	1 single dose



General Instructions:

1. Store the vial in the refrigerator from +4°C to +8°C. Do not freeze.
2. If turbidity develops in the vial do not use, discard it.
3. You can use probiotics along this Bacteriophage product. These bacteriophages do not harm Probiotic bacteria.
4. When using Iodine / Chlorine disinfectant, check for the residual Chlorine to be zero before applying bacteriophage product.



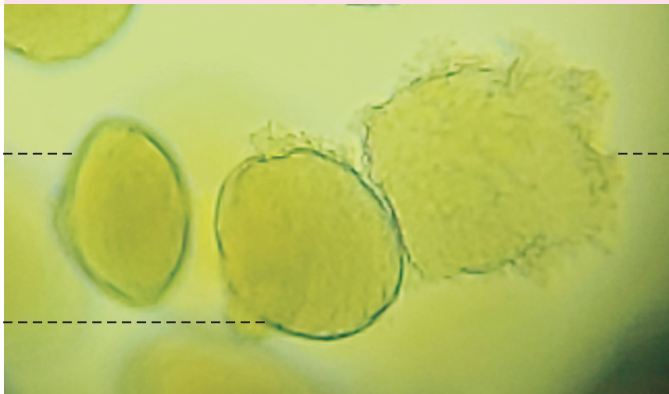
INTRODUCTION TO BACTERIOPHAGES:

Bacteriophages are viruses of bacteria which enter the bacteria, use the bacterial sources as energy, hijack the bacteria and kill them by lysis. When they kill the bacteria, each virus which enter the bacteria multiplies and releases 10 to 100 mature ready to attack, bacteriophages to infect the next set of target infectious bacteria.

The Concept of competitive exclusion becomes ineffective in certain conditions, with proven horizontal transmission of toxin plasmids among various species of *Vibrio*. This critical condition demands quick and sure shot treatment, which is non residual in nature and non-GMO. With the advent of Phage therapy, there is a lot of Hope from the Animal Health industry looking for solutions for their teething problems. Today Phages are termed as a best targeted solution rather than generalized use of Antibiotics, which is widely discouraged Globally.

Here comes the concept of Phage Therapy which is highly specific and quick acting in nature.

Different stages of different *vibrio* colonies infected with Bacteriophages & Progressive Lysis Observed on an Agar plate, under Stereo Microscope



Colony 1 in Stage 1:

Intact Colony may be infected or yet to get infected.

Colony 2 in Stage 2:

Phage infected Colony showing Partial lysis

Colony 3 in Stage 3:

Phage infected Colony Completely lysed, cell contents with multiplied phages spreads out in search of their host.

DEMONSTRATION OF BACTERIOPHAGE LYTIC ACTIVITY ON A LAWN OF PATHOGENIC VIBRIO

