

# AASTIVA

RED FEED

SUSTAINABLE  
MICROALGAE  
FEED AS FOUND  
IN NATURE



SHAIVAA  
ALGAETECH

## OUR COMPANY:

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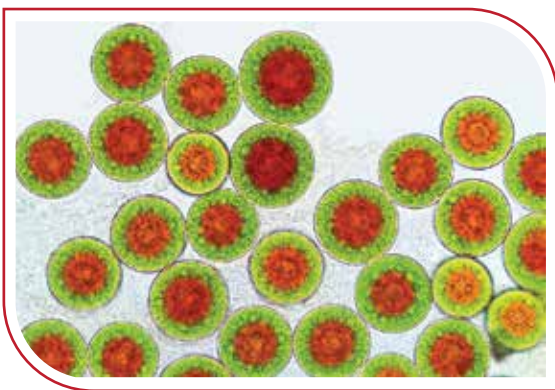
Shaivaa Algaetech is a micro-alga-based Biotechnology Company in Surat, Gujarat. We specialize in commercial scale cultivation of micro-algal species using our high standard, cost-effective state of the art technology.



We have a 3-acre production facility situated in the western part of India. We take pride in our commitment to produce premium quality micro-algal active ingredients for use in various nutritional industries. The company was founded in 2019 with the focus on exploiting the huge potential of micro- algae for a sustainable future of mankind on Earth.

# WHAT IS ASTIVAA RED FEED?

Astivaa Red Feed is a whole microalgae product of the wonder phytoplankton- *Haematococcus pluvialis*. *Haematococcus pluvialis* is a green microalga classified as Chlorophyta that has the capability to accumulate up to 4% Astaxanthin along with other natural carotenoids and essential vitamins, amino acids. Feeding the animal with low quantities of Red Feed has proven to produce a number of health benefits and better pigmentation.



Astivaa Red Feed is a homogenized blend of cracked biomass from *Haematococcus pluvialis* microalga. The blend contains a mixture of Astaxanthin isomer along with other carotenoids like lutein, canthaxanthin, zeaxanthin and beta-carotene. The components of the feed are exactly what is present in the natural food ecosystem of the Crustaceans which provides it the optimal nutrition to grow a healthy animal culture.

**"WHOLE MICROALGAL FEED CONTAINING  
NATURAL ASTAXANTHIN AS  
FOUND IN THEIR FOOD ECOSYSTEM"**



# BENEFITS OF USING IN WHITE LEG SHRIMP (LITOPENAEUS VANNAMEI SHRIMP)

## • Anti-oxidant:

It contains one of the strongest natural anti-oxidants found on Earth- Astaxanthin. The anti-oxidant capability will help protect the animal against the oxidative stress in highly dense cultures.

## • Growth Rate:

Crustacean diet supplemented with micro-algae feed significantly improves the growth rate and survival due to the vital nutrients.

## • Reproduction:

Micro-algal feed is an important part of the diet in hatcheries as it increases the quality of eggs and also the larval survival rate.

## • Immune System:

Astaxanthin plays a crucial role in maintaining a strong immune system of the animal by directly interacting with the haematopoietic tissues that module the immune response.

## • Pigmentation:

Pigmentation is a key attribute for consumer acceptability in the current competitive market. Red feed mainly contains astaxanthin along with other natural carotenoids like beta-carotene, canthaxanthin that bind with the protein moiety of the animal and enables brilliant colouration.



# PREVIOUS DATA ON EFFECT OF RED FEED ON WLS:

Red feed consisting of Natural Astaxanthin has a myriad of benefits in white leg shrimp ranging from improved health, survival parameters and reproduction. Some of the data points from previous studies find that:

## 1) Broodstock fed with 45g of Red feed has proven to:

- Increase carotenoid absorption seen as intense black colour.
- Improve wound healing in wounds occurring during clashes.
- Improve immune as well as reproductive health resulting in active mating and better egg quality.

## 2) Larve and Post-Larve fed with 15 g of Red feed:

- Showed fairly better positive rheotaxis.
- Showed significant stress resistance in energy intensive process of molting during metamorphosis.

## 3) Nursery stage shrimps (PL12- PL37) fed with 5 g of Red feed:

- Showed considerable increase in coping with stress factors like low-salinity, diseases and molting.
- Drastic increase in survival rate due to increased immune function.

## 4) Growing stage fed with 5g of Red Feed in last 15 days before harvest:

- Increased in pigmentation due to the binding of the astaxanthin enantiomer to the proteins in the shrimp body.



## COMPOSITION OF RED FEED

RED FEED	POWDER
Protein	30-35%
Fat	15-20%
Carbohydrates	40-45%
Ash	<5%
Moisture	<5%
Total Carotenoid Complex	>1.5%
Total Astaxanthin	85% of Total Carotenoid Complex
Other Cartenoids (Beta Carotene, Canthaxanthin, Luetin, Zeaxanthin)	15% of Total Carotenoid Complex



# OUR PRODUCTION PROCESS:

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Shaivaa Algaetech is one of the very few Haematococcus p. growing companies in the world. Our production process for the cultivation of this non-GMO microalgae is based on years of meticulous research and development.

Right from the strain selection till the packaging of the product, each step is done in house using our proprietary technology. The cultivation process includes two stages-

## ▪ GREEN STAGE:

The green stage of the micro-algae production is done using our proprietary controlled photobioreactor system.

## ▪ RED PHASE:

The red phase or the carotenoid induction phase is done outdoors in our raceway pond photobioreactors. This is done to mimic the natural conditions that are responsible for the carotenogenesis in the micro-algae.

After Harvesting, the micro-algae is homogenized and dried using a spray-dryer. The process is carried out in suitable parameters to ensure the preservation of all the nutritional characteristics resulting in high bioavailability.



## RECOMMENDATION OF USE:

The general recommendation of using the Astivaa Red Feed is that of adding it at the end of the feed preparation process as astaxanthin will increase the feed palatability. Astivaa Red feed is a solid red powder with a characteristic smell of algae. The powder is insoluble in water & miscible with non-polar solvents. The desired concentration of the powder should be sprinkled and mixed with the dry feed.



## OUR VALUE PROPOSITION:

**Better profits and superior market value due to differentiation like:**

- Significant increase in survival of Larval and post-larval stage animals.
- Improved pigmentation and overall flesh weight of the animal.
- Non-GMO Natural micro-algae feed adds to the sustainability value of your process
- Overall healthy crop with improved immune response to stress factors like disease and other environmental stress.



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