

# FermAlge™ DHA

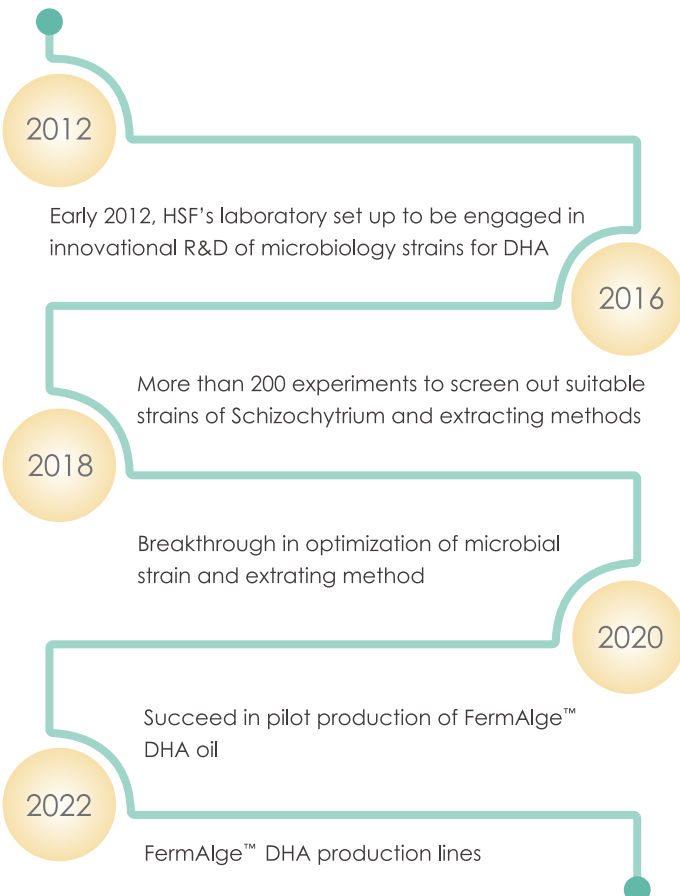
World Top Microalgal Fermentation Technology

## Who We Are

HSF Biotech is a world leading supplier of natural functional ingredients, starting with manufacturing natural vitamin E, phytosterol and microencapsulated powders, HSF has created a rapid and healthy growth in global reputation and technology accumulation, with the help of more than 10 years' continuous technology innovation on fermentation, HSF introduces FermAlge™ DHA series products to enrich its products lines, creating more opportunities with our global partners.



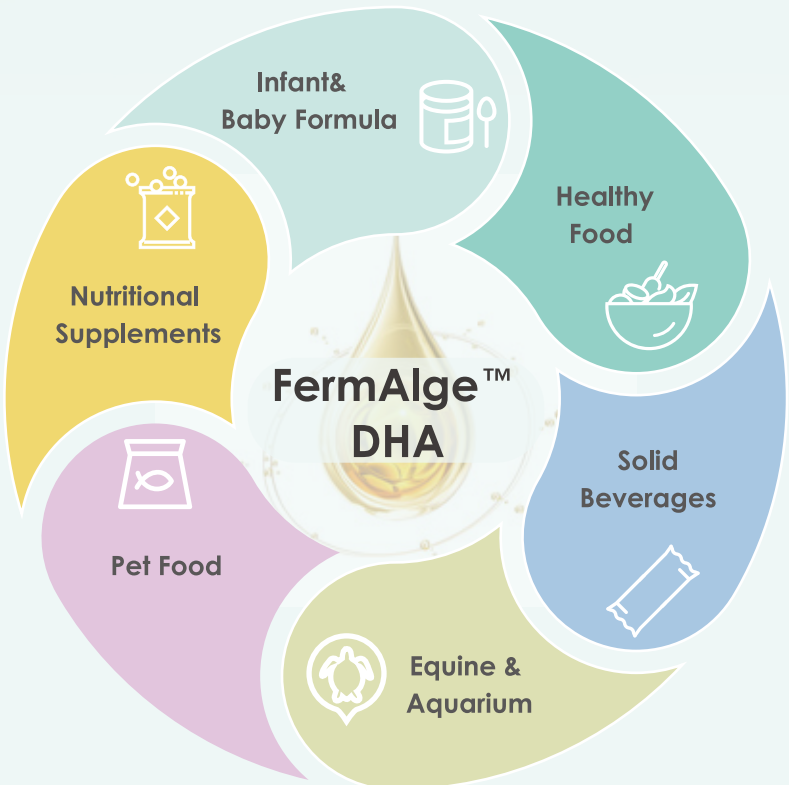
## R&D History of FermAlge™ DHA



## What's FermAlge™

FermAlge™ is a trading mark of DHA series products manufactured by HSF's leading fermentation technology. Thanks to 10 years' continuous R&D and optimization of fermentation & extracting technology, HSF invested more than 16 million USD in its own industrial zone, with this manufacturing facility, HSF can provide the customers with enhanced algal DHA products of a much higher DHA oil like 55%, 60%, and above all, FermAlge™ offers a customized options of even higher 70% or 80% DHA oil by a naturally purifying procedure.

## Application



## FermAlge™ DHA for Infant and Baby

FermAlge™ Omega-3 DHA (docosahexaenoic acid) offers a safe, purer and reliable ingredient for infant and baby formula. DHA is an important component of brain nerve cells and retina, promoting the maturation of nerve cells in the fetal brain and retina, and increase the content of DHA in the red blood cell membrane. Meanwhile, FermAlge™ DHA can enhance the activity of the relevant cerebral cortex, improving children's solving and cognitive ability.



## FermAlge™ DHA for Pregnant Woman

Studies have shown that an average daily intake of 200mgDHA in pregnant women can reduce the growth of membrane shedding cells and incidence of preterm labor. Reasonable supplement of DHA during pregnancy and lactation can help reduce the symptoms of depression.



## FermAlge™ DHA for the Adults

The anti-inflammatory effect of DHA is mainly manifested in inhibiting the metabolic pathway of 5-lipid oxidase in neutral cells and monocytes, thus improving the synthesis of leukotriene B5(LTB5). Studies have shown that the supplementation of appropriate amount of DHA after surgery can have anti-inflammatory function. DHA supplementation can increase HDL/LDL cholesterol ratio and decrease total cholesterol /HDL ratio, significantly reducing the risk of coronary heart disease and cardiovascular disease. In addition, adequate intake of DHA can significantly improve sleep efficiency and quality. DHA can also inhibit the growth of tumor cells.



## FermAlge™ DHA for the Elderly

As part of normal aging, the amount of DHA in the brain will gradually decrease, causing deterioration of brain function. Low levels of DHA in serum and brain in Alzheimer's disease may be due to insufficient DHA intake or oxidation of polyunsaturated fatty acids. Studies have shown that increasing the daily intake of DHA improves language cognition, improves visuospatial learning, and reduces the frequency of episodic memory errors.



## How FermAlge™ Differs

### Traditional Method

Traditional Schizochytrium

Hydrolyzing Shell Break

Solvent Extraction

Traditional Desolventizing

#### Features

Acid and alkali used in shell-break to destroy its natural structure, leads to strong smell,

Prolonged Heating leads to trans-fatty acids and strong smell, dark color

### How FermAlge™ Works

Enhanced Schizochytrium

Low Temperature Drying

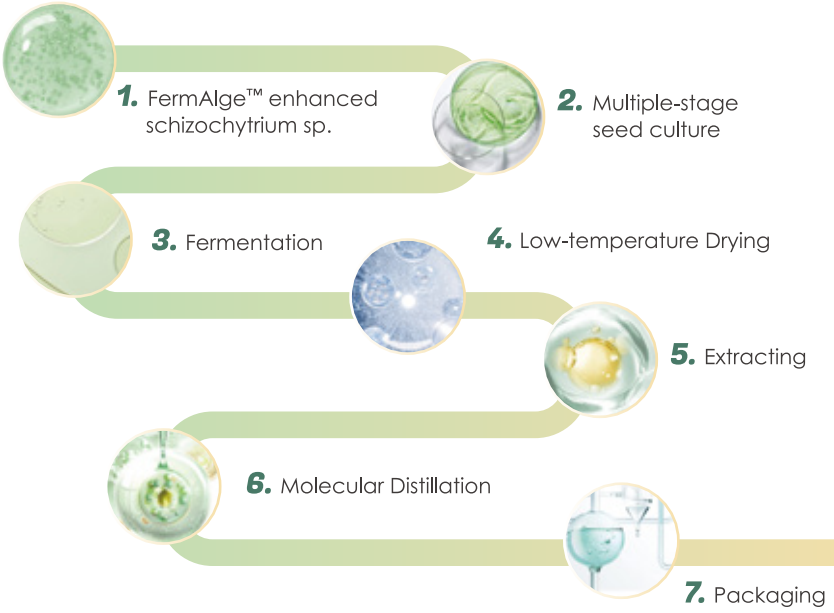
Molecular Distillation,  
Physical Purification

#### Features

No acid or alkali used in shell-break to 100% preserve its natural triglyceride-type molecular structure, truly nature, lighter in odor and color

Shortened heating, no trans-fatty acids, lighter in odor and color, eco-friendly

## FermAlge™ DHA Processing Procedure



## FermAlge™ Strength

### FermAlge™ Enhanced Strain

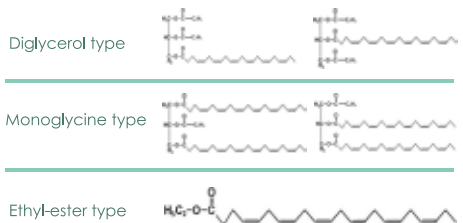
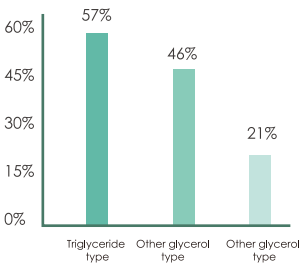


▶ Basic fuchsin staining; X100



▶ Triglyceride-type  
DHA more than 60%

### Various type DHA in Absorptivity



## Higher in Purity

### FermAlge™ is leading in purity of DHA oil

Traditional DHA oil	35%,40%,45%
FermAlge™ DHA oil	40%,50%,60%
FermAlge™ Higher Type	70%, 80%
	By a physical way

## Lower in EPA

Benefit from HSF's enhanced strain (schizochytrium sp.) after more than 10 years' continuous R&D, together with its cutting-edge technology of fermentation and extraction, FermAlge™ DHA has a much lower EPA inside.

## Higher in-House Standard



Advanced FermAlge™ technology will bring a naturally perfect DHA, generating less aldehydes and furans which will cause strong smell, and enhanced FermAlge™ strain will offer you an unexpected surprise of tocopherol by itself, to enable a prolonged shelf life naturally.

## Stricter in Manufacturing



Fully-controlled fermentation and extracting process



Airtight and spotless processing environment



Traceable and reliable operations



Eco-friendly and sustainable development

Product	Content	Application
FermAlge™ algal DHA Oil	40%, 50%, 60%	Nutrition supplement, Food&beverage, Infant&baby formula, Bakery, Healthy food
FermAlge™ algal DHA Oil	70%, 80%(Customized)	
FermAlge™ algal DHA Oil Powder	7%, 10%, 20%	Infant&baby formula, Food&beverages
FermAlge™ algal DHA Powder Feed Grade	1%~18%	Pet food, Equine & Aquarium

FermAlge™ algal DHA performs the superior quality standards, together with HSF's years' production experience in micro-encapsulation, FermAlge™ can offer a vast variety of DHA series products, meeting with all market applications.

# HSF Biotech



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