

# the good oil

November 2015 newsletter of Qponics Limited.



## Global markets demanding more ultra-concentrated omega-3

Qponics is preparing to produce algae and omega-3 oil sourced from algae in late 2016. The Company recently announced in a media release that it had partnered with British company AlgaeCytes Limited to access state-of-the-art photobioreactor technology and the **capacity to refine algal omega-3 oil to very high concentrations.**

A photo of the AlgaeCytes pilot plant photo-bioreactor, which has been operating for more than a year in the UK (picture shown at right). The first commercial-scale photo-bioreactors are due to be manufactured in 2016 for delivery to AlgaeCytes in the UK and Qponics in Brisbane.



The pilot-plant photo-bioreactor showing 1 of 5 interconnected algae growth chambers

The annual **SupplySide West Expo & Conference** was held in Las Vegas in early October 2015. It was attended by 14,000 people from 66 countries from the dietary supplement, food, beverage, animal nutrition, personal care, cosmetic, pharmaceutical and sports nutrition marketplaces.

Online magazine, Nutritional Outlook produced a report from this conference titled "Ultra-high Concentrates Are the Next Omega-3".

This report reinforces Qponics' decision to partner with AlgaeCytes and produce algal oil with high concentrations of omega-3.

## Summary of the report

Suppliers of omega-3 oil from fish and algae are increasingly producing omega-3 with concentrations up to 90% or more. Three suppliers unveiled ultra-high concentrated offerings at the SupplySide West conference, namely FMC (Norway), BASF Human Nutrition (Germany), and DSM Nutritional Products (Netherlands).

FMC's new ultra-high concentrate fish-oil is in the triglyceride form. It contains over 80% EPA/DHA fatty acids—a minimum of 45% EPA and a minimum of 35% DHA. By contrast, standard fish oil offers only about 30% EPA (18%) and DHA (12%) content.

*Qponics comment 1: Omega-3s in the form of polar lipids, especially phospholipids, have been shown to have higher bioavailability than the triglycerides commonly found in fish oils. This has led to the popularity of krill oil, which boasts higher bioavailability than standard fish oil. However, a recent clinical trial that directly compared the absorption of omega-3s between the algal oil of Nannochloropsis oculata (the same species of algae used by Qponics) and krill oil. The results showed that, on a gram-per-gram comparison, the algal oil offered significantly higher absorption and bioavailability of EPA omega-3.*

*Qponics comment 2: The Nannochloropsis oculata strain of algae to be used by Qponics yields 37.5% EPA omega-3 in its unconcentrated oil, compared to 18% in regular fish oil. Qponics anticipates that with additional R&D, higher natural yields of EPA will be achieved in algal oil.*

BASF's new ultra-high-concentrated fish oil, which delivers up to 90% omega-3 content and an EPA:DHA ratio of 46:38.

*Qponics comment: EPA and DHA omega-3s are vital for good animal and human health. There is good evidence that excess EPA is converted to DHA in the body. Qponics plans to develop a DHA omega-3 product from algae in the future.*

DSM's new ultra-high-concentrate fish oil line offers up to 85% omega-3 content and is set to launch in 2016. The company pointed out that the ingredient is "customizable," meaning client companies can select EPA and DHA levels to their own specifications.

*Qponics comment: Qponics will produce algal oil with the omega-3 concentration specified by its customers.*

### **First Algal High-Concentrate**

DSM acquired Martek Biosciences, then a US company that pioneered the production of algal DHA omega-3 oil by growing algae in fermentation tanks, in 2011 for US\$1.1 billion. DSM has announced plans to roll out a high-concentrate algal oil with up to 85% DHA omega-3. Andre Melo, business director, DSM Nutritional Products North America said "... we'll be the only company able to achieve those high concentration levels for DHA."

*Qponics comment: DSM may be the first to achieve such high concentrations of DHA omega-3 from algae, however Qponics anticipates having similar technology to produce very high concentrations of EPA omega-3 from algae in 2016-17.*

### **Food supplement products approaching omega-3 concentrations in prescription-only versions**

There is now a set definition for what a pharmaceutical level of omega-3 is in a product. FMC's Annavarapu said about its new omega-3 product, "A concentration range of 75%-97% is basically a pharmaceutical API [active pharmaceutical ingredient], and this product falls in that range." He clarified this as follows, "Of course, you cannot have a product which is exactly the same spec as a

pharmaceutical because then it becomes an API. So our product is in a different form, but it's in the same concentration range."

### **Benefits to Consumers**

New ultra-high concentrated omega-3 food supplements offer numerous benefits to consumers who may be willing to pay a higher premium price for the privilege. As suppliers invest in the production of high concentrated omega-3 products, they are counting on increased demand to drive their sales. Consumer advantages of ultra-concentrated omega-3 products include:

1. Higher doses can be delivered in smaller, easier-to-take pills.
2. Reduction of the number of pills consumers may have to take daily.
3. Higher concentrations of omega-3 in the oil are achieved by the removal of non-omega-3 compounds, such as the fats and calories that consumers don't need.

BASF's Johnson also confirmed that the company's ultra-high concentrate provides the "benefit of EPA/DHA, without all the unneeded, unbeneficial fat—like in standard fish oil, where 70% of it is fat that you don't need."

*Qponics comment: Refining algal oil to produce an ultra-concentrated omega-3 product leaves behind a sellable algal oil product that is depleted of omega-3, but retains a broad spectrum of other natural healthy compounds.*

## Ultra-High Concentrates Are the Future

Annarapu called ultra-high concentrates the “next generation of innovation” in the nutraceutical omega-3 market. He added, “Of course, it has to be cost-effective, along with being a higher concentration. But it is the wave of the future because consumers are smart and they’re recognizing more and more that what they need is the EPA and DHA in the capsule and not just fish oil... and consumers are realizing the value of a higher concentration.”

### Source of this report:

<http://www.nutritionaloutlook.com/omega-3/ultra-high-concentrates-are-next-omega-3-supplyside-west-report>

## Comments from the Global Organization for EPA and DHA Omega-3s (GOED)

Adam Ismail, executive director of GOED based in the United States, commented in August 2015 that the omega-3 pharmaceuticals market in particular as “growing overall,” pointing out that omega-3 pharmaceuticals are “extremely effective,” with a good safety profile.

Ismail asserted that as doctors learn more about EPA/DHA products, the drugs’ efficacy and safety provide a strong incentive for practitioners to prescribe them to their patients.

He indicated that there are **more than 50 new pharmaceutical products in the R&D pipeline** containing EPA and DHA concentrates. He predicts the demand for omega-3 pharmaceuticals will grow significantly.

Likewise, high-concentrate fish oils, high-purity krill oils and purified algal oils will continue to increase in popularity as supplement consumers learn more about high concentrates and demand increased convenience and higher omega-3 dosages.

“The drive toward convenience means we are seeing many more supplement products utilizing high concentrates to deliver smaller pill sizes, and there are also a number of loyal consumers who want to upgrade their usage and start to see and feel differences they attribute to the omega-3s, or learn more about the science,” Ismail explains.

**Dr Graeme Barnett**, Managing Director of Qponics, said that the report from the SupplySide West Expo & Conference was timely. The marine and algae EPA/DHA omega-3 oil industry has declared that omega-3 products need to be highly concentrated to meet consumer expectations in the years ahead.

The Las Vegas conference announcement shows the wisdom of Qponics in Australia and AlgaeCytes in the United Kingdom forming a global joint venture. This collaboration will allow Qponics to refine omega-3s to match the concentration demanded by consumers up to very high

concentrations, which is clearly the right strategy for Qponics’ future competitive position.



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