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INTERVIEW: Natural Algal Astaxanthin Demand Rising as Science Improves

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24 March 2016 - Due to its relatively low cost, synthetic astaxanthin is often used in aquaculture. However, as consumer preferences evolve, we are witnessing a rise in interest in natural algal astaxanthin products for use in both nutritional and ornamental aquaculture. Today's technological advances in the ways natural algal astaxanthin is produced, together with the development of price-competitive products, are helping unlock new opportunities in aquaculture applications.

Feedinfo News Service turned to Len Smith, who is Chief Business Officer at Heliae® – a Gilbert, Arizona-based company, specializing in the large scale growth of microalgae for use in nutraceutical, pharmaceutical, agricultural and cosmetic products; and which will soon be launching its new aquaculture product (Nyaxa™) in the U.S. - to obtain a better understanding of the market potential for natural algal astaxanthin in aquaculture and how Heliae intends to approach that market feature within.

[Feedinfo News Service] Mr. Smith, what is your view of today's US synthetic astaxanthin and natural algal astaxanthin markets? How fast-growing is natural algal astaxanthin?

[Len Smith] In aquaculture, synthetic astaxanthin dominates the market due to its historically relatively low cost. In human health and nutrition, however, nearly all astaxanthin products use natural, algal astaxanthin given regulatory and consumer concerns about the nature of synthetic astaxanthin (e.g., in terms of optical purity, esterification, and bioavailability, among other issues). Some of these concerns are now extending into the aquaculture market. For example, consumers recently have sued grocery chains seeking labeling of synthetic astaxanthin usage and there is a growing body of web sites expressing consumer concern about the use of the synthetic product. As such, we expect that natural astaxanthin products will be increasingly used to produce higher quality fish.

[Feedinfo News Service] Can you provide some background on your company and explain Heliae's ties with Arizona State University?

[Len Smith] Heliae spun out of Arizona State University in 2011. Our first three years of existence were on the ASU campus and we maintain close ties with the University to this day. Our company was founded with the goal of unlocking the potential of microalgae and similarly underdeveloped biological systems to provide alternative solutions for the world's growing population. Our primary goal is to provide alternative sources of nutrition from microalgae to relieve stress on our existing food production and natural resources, such as natural fisheries.



Len Smith
Chief Business Officer
Heliae

After leaving ASU in 2011, we built an R&D center off-campus and then completed our pilot production facility in 2013. Today Heliae® produces a number of microalgae products for ourselves and our commercial partners in a variety of markets including human health & nutrition, plant and animal agriculture, cosmetics, and materials.

Aquaculture is a recent focus for Heliae. In mid-2014 we went through major management changes and coming out of that period we began to focus on reconnecting with the original vision of the company. This included returning to the idea of developing products for the aquaculture market to help address the growing concerns surrounding those resources.

We are currently working on a number of aquaculture products, the first of which is Nyaxa™, our natural astaxanthin product. . As astaxanthin is already approved by FDA as an animal food additive, we expect to have our approvals for to distribute Nyaxa™ in various states throughout the U.S. to come quickly. We will be offering early adoption discounts and a money back guarantee on the product to help producers try out a natural astaxanthin alternative. We also expect to deliver additional products in 2017-2018.

Since we are very new to the field, we have a lot to learn. As such, we have begun to build partnerships with leading aquaculture experts, major fish feed companies, and also university research groups. We also work with smaller companies that are focused on using microalgae in this field. While we greatly appreciate our current partners, we are always looking for additional companies and individuals to collaborate.

[Feedinfo News Service] What would you say are the advantages of natural algal astaxanthin products in comparison with synthetic astaxanthin?

[Len Smith] Scientifically, natural algal astaxanthin is different from synthetic astaxanthin in at least two ways. First, algae naturally produces high quantities of the biologically active isomer of astaxanthin, whereas synthetic processes often produce isomers that differ from those produced in the natural product. We have reason to believe that at least in some ways these isomers perform differently. Secondly, algal astaxanthin is esterified, meaning that the astaxanthin molecule is conjugated to one or more fatty acid molecules that act as carriers for the compound. In many systems, esterification has been linked to better activity of the molecule. In the spirit of full disclosure, there is a split of opinion about whether esterification is beneficial in fish. However, we believe that much of this research failed to factor other important elements such as the bioavailability and quality of the natural astaxanthin materials used in the studies. Our own research is designed to help answer some of these questions. Given that natural astaxanthin from algae is what fish have evolved to utilize over millions of years, we anticipate that natural astaxanthin will, in most cases, provide a better biological result than typical synthetic astaxanthin products.

For consumers, the advantage of a natural product goes deeper. Today, more than ever, consumers are seeking a return to natural, wholesome food, without sacrificing quality. Heliae's natural astaxanthin products provide consumers with this choice. Our materials are made through non-GMO, natural algae grown naturally using the power of the sun but within enclosed greenhouse facilities to ensure the purity of our product. Our quality is checked by experienced industry professionals working under FDA standards. We believe that for producers that are producing for consumers that want to know their fish was produced with natural, quality ingredients, Nyaxa™ offers an attractive option. We hope to partner with premium producers to help inform consumers of this kind of alternative option for obtaining natural, healthy and attractive fish.

[Feedinfo News Service] Thanks to advances in production technology, the costs of natural algal astaxanthin products are becoming competitive for high-end aquaculture applications. Would you like to expand?

[Len Smith] Not too long ago natural astaxanthin was only produced by a small number of companies. Today, the field has drastically expanded. Many companies, including Heliae, are making significant improvements in their production of this product through improved science. As such, the cost of astaxanthin products is significantly decreasing, which is better for consumers. For the aquaculture market, Heliae intends to make Nyaxa™ available at a fraction of the typical, historical cost of typical natural astaxanthin products. While synthetic astaxanthin may remain cheaper than natural astaxanthin, we believe that the cost will be competitive enough that producers seeking a natural alternative leading to a premium product will be able to readily afford Nyaxa™ and see a good return on their investment.

[Feedinfo News Service] What are the main features of the nutritional research undertaken by Heliae? And what differentiates Heliae's technology from the technology of other natural algal astaxanthin providers?

[Len Smith] Heliae's nutritional research has historically focused on pet food and human applications, but we have launched an internal aquaculture research program this year with the installation of facilities for research, primarily with ornamental species. With respect to astaxanthin, at its core our product is the same product made in nature and we are not seeking to vary or improve on it. Where we are focused is improving packaging and formulation to ensure better stability of the astaxanthin in our products such that our customers obtain the best result from the use of Nyaxa™ and our other astaxanthin products. Stability testing of our own and competitive products is a significant area of focus for the company.

[Feedinfo News Service] What future applications and possible new revenue streams has Heliae identified for its natural algal astaxanthin? And what's next on the company's agenda?

[Len Smith] Heliae has been providing astaxanthin as a nutritional supplement ingredient for human applications for several years and our products are sold through our distributors in some of the best distribution outlets in the United States. We have also supplied our product to cosmetic manufacturers. We are excited to continue to develop our human applications product and variations of it. In addition, we are making our technology available around the world through joint ventures. Our most advanced joint venture, Alvita, is completing a state of the art astaxanthin facility in Japan which will be the first of its kind in that country. We are also excited about the possibilities of this incredible molecule for both livestock and pet health and nutrition.

Heliae is going to continue advancing microalgae science to offer solutions in the areas of concern to our shareholders – nutrition, clean water, health, agriculture, and materials. With respect to aquaculture we are looking forward to offering more complete fish meal products derived from algae to expand the options for aquaculture scientists and producers.