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Marine Ingredients: The Next Wave in Innovation

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Many of the world's leading food and drink companies reflect consumers' interest in health, wellness, natural and sustainability through commitments to reduce levels of salt, sugar and fat; investment in developing functional products designed to deliver health benefits; reformulations that replace synthetic additives with natural ones; and making sustainability assurances, particularly when sourcing raw materials.

However, executing these strategies poses challenges. Efforts to reduce salt (a key part of many companies' health and wellness strategies) impacts flavor perception of the product; developing functional products requires investment in new and unique ingredients that stand up to independent scientific scrutiny; performance and cost are key considerations in sourcing natural alternatives to synthetic additives; and delivering on sustainability commitments requires even more efficient use of raw materials. On top of these challenges are the commercial realities that companies are continually facing to remain competitive, and to seek new and unique ways to differentiate their products.

Marine-derived ingredients are increasingly showing promise in their ability to deliver novel and sustainable solutions, helping food and drink companies deliver against their health and wellness, natural and sustainability strategies.

Salt Reduction

Salt plays an important role in food, helping to maximize flavor, maintain product structure and contribute to food safety by acting as a preservative. However, excessive salt can lead to health problems, such as elevated blood pressure. In committing to salt-reduction targets, many food companies are required to also consider the effect this will have on the product, particularly taste perceptions. Indeed, only this summer Campbell's soup announced it would be adding back some of the sodium it had previously removed from its soup products amidst fears that consumers did not like the taste. Adjusting sodium levels is one solution; another is to use alternative ingredients such as seaweed, which reportedly delivers a salty taste, but with far lower sodium levels. Scientists at Sheffield Hallam University in England are currently exploring the benefits of seaweed with Seagreens®, a supplier of Hebridean wild wrack seaweed. With only 3.5-percent sodium (compared to table salt [39 percent] and SoLo [16 percent, reduced sodium salt]) and with higher traces of vitamins and minerals, the potential benefits are compelling. While seaweed has been widely used in Asian markets, it has only recently begun to make headway in Western markets.

Functional Ingredients

A major opportunity area for food and drink companies in recent years has been the functional food market. Valued at US\$24.2 billion and with annual growth of approximately 8 percent per annum, the functional foods market has attracted a great deal of interest from food manufacturers because of the significant added-value potential in developing products that claim to deliver positive health benefits. Digestive and heart-health claims have formed the bedrock of the functional market by using ingredients, such as prebiotic fibers, probiotic cultures and plant stanol esters. However, with a slight maturing of the category and tighter regulatory control, enforced by greater scrutiny from independent scientific bodies such as the European Food Safety Authority (EFSA), achieving a foothold in the market will require greater differentiation for the product and the type of health claim made (e.g., brain health, eye health and so on), and by using new and unique functional ingredients with scientifically proven benefits. The marine environment is already favorably positioned as fish oils have proven to be one of the richest sources of essential fatty acids (EFAs), such as omega-3, which is a key ingredient in many food supplements, and baby and infant formula products. Efforts to eliminate a fishy aftertaste have led to the growing use of omega-3 oils in food and drink products. For example, Ocean Nutrition Canada (ONC), a supplier of omega-3 docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) products, worked with Wilmar (an Asian agribusiness) to launch Arawana 3A+ premium cooking oil. Enriched with omega-3s, this popular Chinese cooking oil is an innovative breakthrough in raising low consumption levels of omega-3s in the Chinese population.

However, marine ingredients have shown even further promise in functional areas other than fish oils. Recent research concluded bioactive peptides such as chitooligosaccharide derivatives, sulfated polysaccharides, phlorotannins and carotenoids from marine sources, "can be used indirectly as functional ingredients to reduce cancer formation in the human body."¹

Marine-peptides are linked not only to their antioxidative benefits, but are also suggested to have the following major bioactivities: antihypertensive, anticoagulant, immunostimulation, glycemic index-reducing, gastrointestinal (GI), anti-stress and satiety. Application of functional marine ingredients (not including omega oils) in functional foods is relatively