



Functional drinks – innovation pointers

Karen Burgos

A Leatherhead Food
Research white paper

25

Functional drinks – innovation pointers

There are many considerations to be aware of when developing or reformulating a functional drink, from understanding the regulatory landscape to verifying functionality and developing a beverage that appeals to consumers. In this white paper, Karen Burgos talks us through some of the key considerations for innovation.

Functional beverages are thriving for a reason

There is a clear and growing demand for products with enhanced nutritional credentials and the functional beverage market has responded quickly to this. Drinks are targeted across multiple demographic groups, ranging from children to senior citizens, each with their own very specific needs and desires.

Part of the reason that this gap in the market has been plugged by the beverage category, is that beverages offer a great vehicle for functional ingredients; they are flexible in terms of formulation, packaging, size and shelf life. They are also tremendously convenient and single-serve units allow them to fit well into our fast-paced lifestyles. It is not a surprise that companies of all sizes around the world invest heavily in beverage innovation.

However, creating completely new or reformulating existing functional drinks is not simple. There are significant technical, regulatory and nutritional hurdles, which the development process needs to take into consideration.

Science is essential

Gone are the days where a leading product can be developed by iteration and instinct alone. Functional beverages demand a clear and thorough understanding of why each ingredient is selected and how each constituent ingredient interacts with the other (a 'blueprint' of functionality); whether they are complementary, whether they create a conflict, and whether they have a genuine health benefit to the consumer. Even with established

functional ingredients such as herbal extracts, proteins, prebiotics, probiotics and dietary fibres, this can be a complex task and the inclusion of novel ingredients like superberries can further complicate things!

Other significant considerations are the origin and processing of the functional ingredient(s), important in ensuring the quality and safety of the final product.

What works in New York won't work in New Delhi

Global trends relating to functional drinks stem from sociodemographic and sociocultural differences in consumer perceptions and acceptance. Consequently, the rate of trend development differs both within and across country borders.

For larger organisations, this creates a need for flexible product formulations that can be rapidly modified to respond to the varying needs of different markets, whilst smaller organisations can benefit from the 'start-up' approach to innovation.

Regulation is playing catch-up

The regulatory framework surrounding functional foods is continually evolving in order to keep up with industry developments. For a long time, there was little regulatory involvement in this area due to a lack of legal definition of the term 'functional food' itself in any markets worldwide.

Products are now controlled by several different legislations, mainly nutrition and health claims regulations for related claims

and novel food regulations for the permissibility of the functional ingredient itself.

In Europe the introduction of both nutrition and health claims and novel food regulations changed the dynamics of the functional foods market, leaving many manufacturers, particularly those selling botanical ingredients, in a state of uncertainty over the legality of their claims. However, the new novel foods regulation introduces a fast-track procedure; when the regulation comes into effect in January 2018, it is likely to speed up the approval process for functional food ingredients.

Leading markets may not have the answer

One of the leading markets for functional foods is Japan, where these products are known as 'health foods'. These 'health foods' are categorised into three groups, which include:

- Foods for Specified Health Uses (FOSHU)
- Foods with nutrition function claims; and
- 'So-called health foods'

The previously uncontrolled 'so-called health foods' have been regulated by the new self-substantiation notification procedure since April 2015, where hundreds of products were notified within the first month alone.

Although many countries in the world make reference to the EU and Japanese regulations related to 'functional foods', specific requirements are drastically different. An ingredient traditionally used in one country may be classified as 'novel' in others. These differences make it difficult for manufacturers to find a globally accepted product.

Substantiating claims can be complicated

Any claim related to a specific nutrient must be for at least a 'significant amount' of the nutrient

and the required levels vary depending on the market where the product will be sold.

The product also needs to ensure that minimum levels of the functional ingredient(s) are present throughout the life of the product. Accelerated tests are often the first port-of-call when a launch deadline demands rapid innovation, but these can only provide an indication of shelf life and likely issues. Ultimately, shelf life can only be verified through real-time studies, where the functional ingredient is quantitatively analysed throughout the product's expected shelf life.

Shelf life should consider stability and safety

The shelf life of a functional drink will not only depend on its organoleptic (taste, appearance, aroma and texture) and microbiological stability, but also on the potential degradation profile of the functional ingredient(s) in question. Their stability depends on several factors, including ingredient interaction, the type of beverage vector used, the processing method of the final product, the type of product packaging and storage requirements. Vitamins, for instance, are especially susceptible to degradation during processing and storage; a classic example is Vitamin C-enriched products, which require carefully selected packaging solutions, as Vitamin C is unstable in the presence of light.

Formulating for success – how we can help

Leatherhead Food Research can help in the development and evaluation of your product. With expertise spanning across functional foods, product development, nutrition, sensory, food safety and global food regulations, we are in a unique position to help you develop a functional drink from concept to launch.

Contact our helpline at innovation@leatherheadfood.com for any assistance in relation to your product formulation.

About the author

Karen Burgos is a Principal Scientist at Leatherhead Food Research and has comprehensive knowledge in product development; from ideation to product launch. Currently, she provides NPD consultancy, focussing on the area of functional beverages, to a wide range of food industry clients. Karen joined Leatherhead Food Research in 2014 and has a MSc degree in Engineering (Biotechnology) awarded by Lund University, Sweden.

References

- M. Rosaria Corbo, A. Bevilacqua, L. Petruzzi, F Pio Casanova and M. Sinigaglia (2014) Functional Beverages: The emerging side of functional foods (Commercial trends, research and health implications). *Comprehensive Reviews in Food Science and Food Safety*, 13: 1192-1206.
- D. Barclay (1998) *Food and Nutrition Bulletin*. The United Nations University, Vol. 19, No. 2.
- M. Lipp (2012) Beverages at the forefront of innovation in booming functional food market. *Food Safety Magazine*, June/July.

About Leatherhead Food Research

Leatherhead Food Research provides expertise and support to the global food and drink sector with practical solutions that cover all stages of a product's life cycle from consumer insight, ingredient innovation and sensory testing to food safety consultancy and global regulatory advice. Leatherhead operates a membership programme which represents a who's who of the global food and drinks industry. Supporting all members and clients, large or small, Leatherhead provides consultancy and advice, as well as training, market news, published reports and bespoke projects. Alongside the Member support and project work, our world-renowned experts deliver cutting-edge research in areas that drive long term commercial benefit for the food and drink industry.

help@leatherheadfood.com T. +44 1372 376761 www.leatherheadfood.com

About Science Group plc

Leatherhead Research is a Science Group (AIM:SAG) company. Science Group plc offers independent advisory and leading-edge product development services focused on science and technology initiatives. Its specialist companies, Sagentia, Oakland Innovation, OTM Consulting and Leatherhead Food Research, collaborate closely with their clients in key vertical markets to deliver clear returns on technology and R&D investments. Science Group plc is listed on the London AIM stock exchange and has more than 350 employees, comprised of scientists, nutritionists, engineers, mathematicians and market experts.

Originally founded by Professor Gordon Edge as Scientific Generics in 1986, Science Group was one of the founding companies to form the globally recognised Cambridge, UK high technology and engineering cluster. Today Science Group continues to have its headquarters in Cambridge, UK with additional offices in London, Epsom, Boston, Houston and Dubai.

info@sciencegroup.com

www.sciencegroup.com