

Functional ingredients in food: Enhancing nutritional value and health benefits.

Michael J. Gidley*

Department of Nutrition and Food Sciences, University of Queensland, Australia

Introduction

The modern food industry has seen a surge in consumer interest in foods that offer more than just basic nutrition. Consumers are increasingly looking for foods that can help improve their overall health, prevent chronic diseases, and promote well-being. This shift in demand has led to the rise of functional ingredients—ingredients added to food not only for their nutritional value but also for their potential to offer health benefits beyond basic nutrition. These ingredients can help address specific health concerns, such as heart disease, diabetes, digestive health, or immune function, making them an essential component of many modern diets [1].

Functional ingredients can be natural or synthetic, and they are often incorporated into everyday foods like cereals, snacks, beverages, and dairy products. They are rich in bioactive compounds, which are substances that have a positive effect on health, such as antioxidants, fibers, and fatty acids. As consumers become more aware of the impact of their diets on health, functional ingredients are gaining popularity in the global food market. This article explores the role of functional ingredients in enhancing the nutritional value and health benefits of food, while examining key examples and emerging trends [2].

Functional ingredients are food components that have a demonstrated ability to provide health benefits beyond basic nutrition. Unlike traditional nutrients like carbohydrates, proteins, fats, vitamins, and minerals, which are essential for growth and development, functional ingredients specifically target specific health outcomes, such as boosting immunity, reducing inflammation, or improving gut health [3].

Some functional ingredients are naturally found in foods, while others are added through fortification or food processing techniques. For example, omega-3 fatty acids, found in fatty fish like salmon, are known to promote heart health, while probiotics, found in fermented foods like yogurt, can enhance digestive health. On the other hand, synthetic functional ingredients, such as added plant sterols or fortified vitamins, are often included to help prevent nutrient deficiencies or improve specific health conditions [4].

Dietary fiber is one of the most well-known and widely used functional ingredients. It is a type of carbohydrate that the human body cannot digest, and it is commonly found in

plant-based foods such as fruits, vegetables, whole grains, and legumes. Fiber is beneficial for digestive health as it helps regulate bowel movements, prevents constipation, and supports the growth of beneficial gut bacteria. It is also known to help manage blood sugar levels, lower cholesterol, and contribute to weight management [5].

In addition to its natural presence in whole foods, fiber is increasingly added to processed foods like breakfast cereals, snack bars, and beverages to enhance their health benefits. Soluble fiber, found in foods like oats and apples, can help lower cholesterol, while insoluble fiber, found in whole wheat and vegetables, improves digestion and prevents constipation [6].

Probiotics are live microorganisms that provide health benefits when consumed in adequate amounts. These beneficial bacteria help maintain a healthy gut microbiome, which is essential for proper digestion, immune function, and even mental health. Probiotics are naturally found in fermented foods such as yogurt, kefir, sauerkraut, and kimchi. They are also available in supplement form [7].

Omega-3 fatty acids are essential fats that play a crucial role in heart health, brain function, and reducing inflammation. They are found in fatty fish such as salmon, mackerel, and sardines, as well as in flaxseeds, chia seeds, and walnuts. The two most well-known types of omega-3 fatty acids are EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid), which are particularly beneficial for reducing the risk of heart disease, supporting cognitive function, and improving joint health [8].

Given the widespread recognition of the health benefits of omega-3s, they are often added to functional foods like plant-based milk, eggs, margarine, and supplements. Omega-3-fortified foods offer an easy and convenient way for people to incorporate these beneficial fats into their diets, especially for individuals who do not consume enough fatty fish [9].

Vitamins and minerals are essential nutrients that support various bodily functions, from immune defense to bone health. While many vitamins and minerals are naturally present in foods, some individuals may struggle to meet their nutritional needs through diet alone. Functional foods fortified with vitamins and minerals are designed to fill nutrient gaps and support optimal health [10].

*Correspondence to: Yanhua Wang, Department of Food Science, Zington univeristy, China. E-mail: juddy0921@163.com

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Conclusion

Functional ingredients are transforming the food industry by providing added health benefits that go beyond basic nutrition. From improving heart health to supporting digestive function and enhancing immune defense, these ingredients play a crucial role in promoting overall well-being. As the demand for functional foods continues to grow, food manufacturers are increasingly incorporating these ingredients into everyday products to offer consumers more nutritious and health-promoting options.

References

1. Rice AS, McMahon SB. Peripheral nerve injury caused by injection needles used in regional anaesthesia: influence of bevel configuration, studied in a rat model. *Br J Anaesth.* 1992;69(5):433-8.
2. Hadzic A, Dilberovic F, Shah S, et al. Combination of intraneural injection and high injection pressure leads to fascicular injury and neurologic deficits in dogs. *Reg Anesth Pain Med.* 2004;29(5):417-23.
3. WWW.Anaesthesia Equipment Explained .com
4. Benumof JL. Permanent loss of cervical spinal cord function associated with interscalene block performed under general anesthesia. *Anesth.* 2000; 93:1541-4.
5. Cohen JM, Gray AT. Functional deficits after intraneural injection during interscalene block. *Reg Anesth Pain Med.* 2010;35(4):397-9.
6. Liu SS, YaDeau JT, Shaw PM, et al. Incidence of unintentional intraneural injection and postoperative neurological complications with ultrasound?guided interscalene and supraclavicular nerve blocks. *Anesth.* 2011;66(3):168-74.
7. Steinfeldt T, Poeschl S, Nimphius W, et al. Forced needle advancement during needle-nerve contact in a porcine model: histological outcome. *Anesth Analg.* 2011;113(2):417-20.
8. Ansbro FP. A method of continuous brachial plexus block. *Am J Surg.* 1946;71(6):716-22.
9. Dekkey J, Schboeder C, Bueciiel D. Continuous brachial plexus block. *J Amer Soci Anesth.* 1969;30(3):332.
10. Sarnoff SJ, Sarnoff LC. Prolonged peripheral nerve block by means of indwelling plastic catheter. Treatment of hiccup (Note on the electrical localization of peripheral nerve). *J Amer Soci Anesth.* 1951;12(3):270-275.