Functional foods’ popularity continues to rise as people take an increased interest in the connection between diet and wellness and look to the foods they consume to help maintain their health.

Functional food trends reflect consumers’ desire to take a proactive approach to their health by consuming ingredients with properties that help prevent conditions like heart disease and cancer.

Flavoring functional food and beverages can be tricky due to certain properties of functional ingredients, such as protein and vitamins. Methods, such as masking and encapsulation, help flavor companies create delicious-tasting functional foods and beverages.

What’s Moving the Market?
Economic, demographic, social, and environmental factors are driving consumers to functional foods in record numbers. Understanding these influences can help you to better understand your consumers and their expectations of your product. Below are four drivers impacting the market today.

1. Aging Population
Seventy-six million Baby Boomers are growing older and by 2030 people who are 65 and over are expected to make up 20%, or one fifth, of the U.S. population (1). As the population ages, conditions, such as high cholesterol, high blood pressure, osteoporosis, and diabetes, increase. People look to what they consume to improve their health. In fact, today, almost a third of Americans are using functional ingredients to treat or manage an existing condition (5).

2. Healthcare Costs
With healthcare costs on a continuous climb since 1970, people are paying more attention to the connection between their diet and their physical and mental health. Almost 70% of Americans use functional food and beverages to help prevent a health issue (5). Twenty-five percent of Americans rely on functional ingredients to manage or treat an existing condition on their own, foregoing costly doctor visits (5).

3. Consumer Awareness and Habits
With health information readily available and easily accessible, consumers are taking greater control of their health by researching issues and making decisions based on information not available to the general public in the past.

4. Advances in Science and Technology
Increased knowledge of the role of diet in health and disease prevention, and technical advances allowing for the creation of health-promoting foods, have helped open the world of functional foods to consumers around the globe. For example, scientific reports supporting the health benefits of superfoods, such as pomegranate, have helped send these foods soaring into the mainstream from relative obscurity.

What’s Tops Today?
As consumers look for food and beverages that deliver specific health benefits they desire, the market drivers discussed above, such as an aging population, influence trends in functional ingredients and products. Here are five functional food trends to keep an eye on:

1. Kids at Risk
As the rate of childhood obesity and the associated health risks begin to climb, healthy food for children is becoming an increasing focus. Twenty-eight percent of parents say they have an overweight child, and one in eight kids has two or more risk factors for developing heart disease as they grow older (5).
2. One Hundred-Calorie Helpings
Twenty-five percent of consumers are seeking out 100-calorie snack packs, while 63% of U.S. shoppers are looking for lower-calorie versions of their favorites. With two-thirds of shoppers trying to eat snacks with more nutrition, healthy snack sales outpaced traditional snacks nearly three to one over the last few years (5).

3. Phytochemicals
A phytochemical is a compound found in all plant-based foods, such as eggplant and grapefruit, that reduces the risk of many diseases, including cancer, heart disease, stroke, high blood pressure, cataracts, and osteoporosis.

4. Healthy Fats
Omega-3 fatty acids support cardiovascular health, and their growing popularity is leading consumers to seek other healthier oils as well (5). More than half of shoppers are trying to avoid trans fat, total fat, and saturated fat (2).

5. Gluten and Grains
One in 100 people are wheat gluten intolerant, a four-fold increase from just 50 years ago (3). Because of whole grains’ association with a reduced risk of some types of cancer, gastrointestinal health, and possible maintenance of blood glucose levels, seven in 10 consumers tried to increase their consumption of whole grains last year (2).

How Do We Overcome Flavor Challenges?
The ingredients consumers are demanding aren’t easy to work with when it comes to creating a product that scores high on function and flavor. Ingredients such as vitamins and proteins present product developers with flavor challenges that can be tricky to overcome. Common flavoring challenges include:

• Bitterness from vitamins, caffeine, and polyphenols
• Astringency from herbs
• Beany notes from proteins

• Fishy notes from omega-3s
• Metallic taste from vitamins

There is no one way to meet these flavor challenges and no one solution that will work the same way each time. Developing an excellent flavor in functional foods takes time, an open mind, and plenty of communication with your flavor house. While there are a variety of approaches, let’s take a look at the general steps involved with finding your perfect flavor.

Step One: Neutralize the Base
The first step in overcoming the flavor challenges posed by functional ingredients is to identify and neutralize the offensive note in the base. Common ways to alter taste are modification, masking, blocking, and encapsulation. Your solution might be one or a combination of these methods.

Modification
Modification involves ingredients in the finished formula that can complement, enhance, or modify the way you taste the food. Modifiers adjust the oral perception of a flavor by providing a bit of competition to manipulate taste buds. For example, low levels of gums and starches can be added to coat the mouth, preventing the taste buds from touching the offending ingredient. Or, a food scientist might modify the formula with low levels of basic ingredients, such as salt, acids, or sugars, which can have significant effect on the taste. Still other modifications can offer creaminess and fullness to affect the taste perception.

Masking and Blocking
Masking and blocking are ways to use flavor to neutralize the base. Masking involves using flavors to confuse the brain and provide competing responses from the nose and tongue. Blockers are components that cause a physical interaction on the palate, blocking receptors on the tongue. Both masking and blocking can be used across a wide spectrum of applications, but also have the potential to alter flavor profiles you don’t intend them to or upset the overall balance of the formula. Using these methods is a delicate process.

Encapsulating
Encapsulating difficult ingredients isolates them, providing a protective barrier between them and the other ingredients.

How are functional ingredients used?
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Encapsulation can also delay or prevent rancidity of oils, such as with omega-3s, extend shelf life, and control interactions with other ingredients. Keep in mind, not all healthful ingredients you may need are available in this form and encapsulated ingredients are more costly.

**Step Two: Build a Profile**

After neutralizing the base, it’s time for the fun part—building your flavor profile to suit your target audience and develop a taste that’s all your own. Flavors used in this process are defined as characterizing and noncharacterizing.

**Characterizing Flavors**

When you smell or taste these flavors, they provide familiarity and are reminiscent of the named flavor—a strawberry is a strawberry. Choosing the right characterizing flavor can complement inherent notes of the base (Table I).

**Noncharacterizing Flavors**

Noncharacterizing flavors help to enhance the flavor and bring it depth. They add nuance to make the flavor your own, like adding a hint of cookie dough to your vanilla flavor to create an enticing finished product with a signature taste.

**Step Three: Enjoy the Journey!**

Developing your signature flavor to meet these challenges is a journey, so keep an open mind and remember there is no one formulation that works in all situations. Also, consider flavors that might not be consistent with your first thoughts. You never know what new ideas, blends, and possibilities will be your perfect solution!

**References**


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