

Functional Beverages-A Trend in Beverages

Anushree R K¹ and Soumya Sucharita Saho²

¹Ph.D Research Scholar and ²M.Sc. Scholar, Department of Food Science and Nutrition, VNMKV, Parbhani, Maharashtra.

ARTICLE ID: 31

Introduction

A functional beverage is a drink product that is non-alcoholic and includes in its formulation ingredients such as herbs, vitamins, minerals, amino acids or additional raw fruit or vegetables.

This high demand toward functional beverages is the results of convenient content, size, shape, and appearance of the containers, as well as ease of distribution and storage conditions for the refrigerated and shelf-stable products. Moreover, it is possible to incorporate desirable nutrients and bioactive compounds into functional beverages, such as antioxidants, dietary fibers, prebiotics, proteins, peptides, unsaturated fatty acids, minerals, and vitamins. This has resulted in a number of new beverages in the marketplace designed to address specific health concerns. There are several types of functional beverages, such as dairy-based beverages, probiotic drinks, energy drinks, sports drinks, meal replacers, caffeinated beverages, vegetable and fruit beverages. These functional beverages have beneficial effects on one or more functions of human body in addition to their basic nutritional values.

The expected impact of functional beverages, such as reducing of cancer risk, boosting immune system, improving physical and mental condition, antistress, antiaging, antioxidant, and anti-inflammatory properties, depends on their contents and production methods. While developing commercially successful functional beverages some important factors, including the selection of raw material, process technology, and the taste, texture, flavor, appearance, chemical and functional properties of the beverage, must be taken into consideration to obtain a safe, high quality, and market value product. Increasing the success of a newly developed product in the market also depends on the scientific evidence, daily intake limit, consumer acceptance, commercial aspects, and legal regulations (Fig 1).

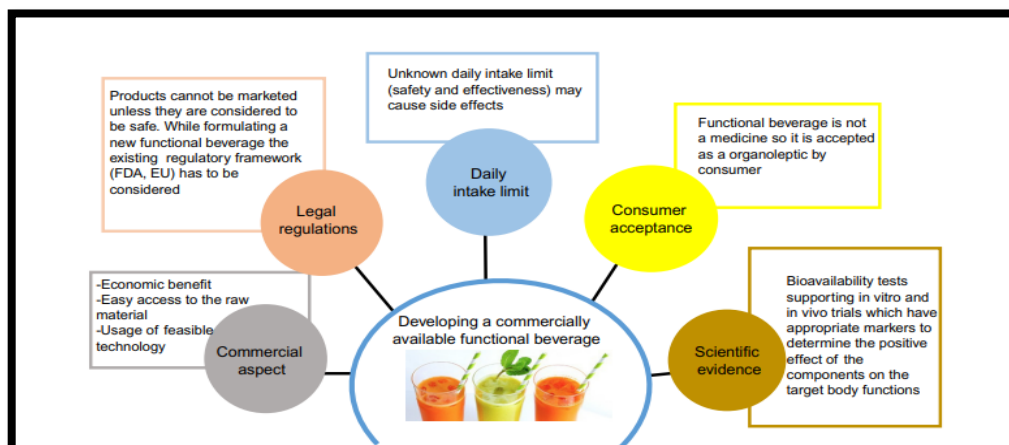


Fig 1: Important aspects to take into consideration for the development of commercially successful functional beverages

Functional beverages are taken in Different forms they are as follows:

- ❖ Mood Enhancement (benefits such as calming, relaxing, and improving mood)
- ❖ Immunity Boosters (trending ingredients like green tea, hibiscus, mushrooms, and acerola)
- ❖ Clean Energy Drinks (natural sources to boost energy such as yerba mate extract, green tea extract, guayusa leaf, and green coffee extract).

Classification of Functional Beverages based on nutraceuticals found

Nutraceuticals found in functional food can be classified in several ways and this classification leads to better understanding of their role in human health. Four classification approaches to nutraceuticals are given in the following:

1. They can be grouped based on the food source (i.e., which food they are derived from). The source may be a plant, animal, or microbial. β -glucan, ascorbic acid, α -tocopherol, β -carotene, lycopene, quercetin, and lutein are among the good examples of plant derived nutraceuticals. Conjugated linoleic acid, eicosapentaenoic acid, and docosahexaenoic acid are originated from animal sources, whereas *Saccharomyces boulardii*, *Bifidobacterium bifidum*,



and *Lactobacillus acidophilus* are examples of microbial sources.

2. Nutraceuticals can be classified based on the relatively concentrated foods. This approach is more convenient when there is a particular interest for a specific food due to its agricultural properties and geographical location or nutraceutical compound (e.g., isoflavones in soybean and other legumes; quercetin in red grape and citrus fruit; eicosapentaenoic acid and docosahexaenoic acid in fish oils; β -carotene in carrot and pumpkin; catechins in tea and berries, etc.).
3. Another way of grouping nutraceuticals depends on their mechanism of action. Here, the most important parameter is their proven physiological properties regardless of food source. Antioxidant, antibacterial, hypotensive, hypocholesterolemic, anticarcinogenic, anti-inflammatory, and osteoprotective nutraceuticals are among the best examples of this group.
4. Classifying them based on the particular chemical element/ groups is the other common way that enables to understand their chemical nature. Isoprenoids, phenolic compounds, amino acids, carbohydrates, fatty acids, lipids, and minerals constitute good examples of this type of nutraceuticals.

Classification of the functional beverages based on their formulations



❖ Fermented Beverages and Their Health Benefits

Fermented probiotic foods containing sufficient number of certain live microorganisms stimulate the growth of preferred microflora and positively modify the host intestinal microbiota when consumed on a regular basis. Probiotics are the fermented ingredients that alter the composition and/or activity of the gastrointestinal microflora and

they are beneficial to the host's health. These fermented foods are important for achieving the new generation functional beverages. According to certain estimation, probiotic foods constitute between 60% and 70% of the total functional food market. Prebiotics, which are specialized plant fibers, improve the host health by stimulating the activity of certain favorable bacteria species in the colon .

❖ **Dairy-Based Fermented Beverages**

Kefir, functional whey beverage, yogurt, and drinkable yogurt can be given as examples of the dairy-based fermented beverages. These fermented dairy products demonstrate desirable characteristics to maintain the healthy balance of human intestinal microflora that plays an important role in presenting resistance to pathogen colonization in the intestinal tract. When these beverages are consumed in adequate amounts, they display a positive influence on the host health. Functional dairy-based fermented beverages have generally been studied and formulated in combination with another foodstuff such as germinated wrinkled lentils, plant sterols (PSs), oregano extract or essential oil, barley malt, calcium, vitamin D, prebiotic dietary fiber to enhance nutritional value, texture, and flavor of the beverages and to avoid undesirable turbidity and sedimentation, especially during a long time storage.

❖ **Non-dairy-Based Fermented Beverages**

Non-dairy-based beverages are serious alternatives to dairy-based beverages, particularly for many people who have health concerns linked to lactose intolerance, allergenic milk proteins, and milk cholesterol content as well as for vegetarians. Hence, the development of non-dairy-based beverages becomes a priority for food design and creates a high demand in research and food industry. Non-dairy-based foods generally contain probiotic bacteria strains and a probiotic food includes a high population of probiotic microorganisms in its formulation. Probiotics can be defined as microorganisms that provide health benefits when consumed in adequate amounts. The development of non-dairy beverages is a complex process that includes the selection of optimal process conditions, probiotic culture, and substrates. Most of traditional nondairy fermented beverages produced around the world are nonalcoholic beverages that are manufactured with cereals as the main raw material. Besides fruit juices, desserts and legume-based products can also be used as a substrate for probiotics. Appropriate selection of substrate

composition and strains is necessary for the efficient control of distribution of the metabolic end products.

❖ **Fruit-Based Functional Beverages and Their Health Benefits:**

Fruits and vegetables, which contain many components including polyphenols, vitamins, minerals, and pectins, may be consumed as whole or as a raw material to prepare new mixed beverages. Fruit juice-based beverages are becoming more popular because they represent an easy and convenient way of consuming fruits that are important sources of health-promoting compounds. Therefore, there has been an intensive development of fruit and vegetables industry that attempts to design new attractive products.

❖ **Herbal-Based Functional Beverages and Their Health Benefits**

Tea is one of the most popular drinks in the world, 80% of which is consumed as black tea. Considering global consumption, tea is the second most consumed beverage after water according to the Tea and Herbal Association of Canada (2016). Canadian people drink around >10 billion cups of tea each year and it is expected that its consumption will increase approximately 40% by 2020 according to the report of Agriculture and Agri-Food Canada (2005). Tea is a plant-based beverage containing natural bioactive phytochemicals or phytonutrients. Numerous antioxidant-rich plants, which show a potential to be used in tea production, have been found in recent years. However, a few of these plants have been investigated owing to their vast diversity. Natural antioxidants present in edible plants have attracted researchers because of the side effects of synthetic antioxidants such as butylated hydroxyanisole (BHA) and butylated hydroxytoluene (BHT). The innovative research in the field of new polyphenol-rich drinks have prompted in connection with their health-promoting properties and consumer demand

Market trends of functional beverages:

Functional beverage industry is the largest functional food sector, including food, beverages, and supplement sectors. It is also the fastest growing market in the food sector. The global functional drinks market grew by 3% in 2010, and a substantial increase was observed in 2014 with a 7.8% growth.

Conclusion

In conclusion, functional beverages have gained popularity in recent years due to their potential health benefits beyond just quenching thirst. These beverages are formulated with

ingredients that can boost energy, improve focus, aid digestion, enhance immunity, and provide other health benefits. However, it is important to note that not all functional beverages are created equal, and some may contain high amounts of sugar or other additives that can be detrimental to health. As with any food or beverage, it is crucial to read the label and understand the ingredients before consuming. Despite the potential drawbacks, functional beverages offer a convenient way to incorporate beneficial ingredients into one's diet. The market for functional beverages is expected to continue growing, as more people seek out convenient and healthy options for their busy lifestyles. Overall, functional beverages can be a part of a healthy and balanced diet when consumed in moderation, alongside a variety of whole, nutrient-dense foods. It is important to make informed choices and prioritize quality when choosing functional beverages to reap the full benefits of these products.

References

- Tolun, A., & Altintas, Z. (2019). Medicinal properties and functional components of beverages. In *Functional and medicinal beverages* (pp. 235-284). Academic Press.
- The Benefits of Functional Beverages. 2023. Foods and beverages magazine.