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Millets: The Tiny Grains with Giant Benefits

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Millets, a diverse group of small-seeded grasses, are cultivated worldwide both as staple grains and as fodder crops. Recognized as "nutri-cereals," they are increasingly considered the next-generation superfoods due to their nutritional richness and role in household food security. The International Year of Millets (2023) emphasized their potential to enhance nutrition and strengthen resilience against food insecurity. With urbanization, higher incomes, and shifting lifestyles, ready-to-eat (RTE) and ready-to-cook (RTC) millet-based products are emerging as affordable and convenient substitutes for traditional grains. Consumer choices are largely influenced by convenience, nutritional benefits, flavours, price, and packaging. While urban buyers prioritize health attributes, rural consumers focus on affordability. Awareness created through social media, peer influence, and the rising concern about lifestyle diseases like diabetes plays a critical role in adoption. Despite challenges related to sensory appeal and affordability, the rising demand for millet-based convenience foods highlights their compatibility with modern dietary needs.

Keywords: Millets, Ready-to-cook, Ready-to-eat, Consumer preference

Introduction

The word "millet" derives from the French term *mille*, referring to the thousands of tiny seeds contained in small amounts of the grain (Hemamalini et al., 2021). Historically, millets were among the earliest domesticated crops in Asia and Africa. In India, these drought-tolerant and nutrient-rich cereals thrive in arid and semi-arid regions. Based on size, they are classified as "major millets" (such as sorghum and pearl millet) and "minor millets" (including finger, barnyard, little, kodo, foxtail, and proso millet) (Alekshya et al., 2019). Though often called "coarse cereals" or "the poor man's grain," Indian millets are nutritionally superior to rice and wheat, being richer in protein, vitamins, and minerals.

In 2023, global food insecurity was alarming: nearly 733 million people suffered from hunger and 2.8 billion lacked access to balanced diets. This situation highlighted the gap in achieving the Sustainable Development Goals. Promoting the sustainable cultivation and consumption of millets offers a pathway to diversify agri-food systems and enhance nutrition security. The International Year of Millets (IYM 2023) drew attention to the potential of these cereals in making global food systems more resilient, sustainable, and inclusive.

In India, millet-based RTE and RTC foods are gaining ground as cost-effective, gluten-free, and healthy alternatives. Processing methods include primary steps (dehusking, milling, soaking, germination, fermentation) and secondary techniques (flaking, popping, extrusion, baking) that transform raw grains into ready-to-use forms (APEDA, 2023). Their recognition as "Smart Foods" underscores both their nutritional richness and their role in addressing deficiencies of essential vitamins and minerals.

Despite India ranking 12th in global millet production, consumption lags due to low integration into daily diets (Kumar et al., 2022). While minor millets are more nutrient-dense, limited processed and refined forms have slowed their wider acceptance (Shanthakumar et al., 2010).

Ready-to-eat and Ready-to-cook food products

RTC foods are semi-prepared items requiring minimal additional ingredients before cooking, whereas RTE foods are fully prepared and can be consumed directly without further processing (Udaiyar and Com, 2018). Globally, the RTE food sector was valued at US$ 12.4 billion in 2022, while the RTC market reached US$ 181.5 billion in 2023. These are projected to grow steadily, with RTE foods expected to reach US$ 262.4 billion by 2032 (CAGR 4.18 per cent) and RTC foods US$ 15.4 billion by 2030 (CAGR 6.9 per cent).

In India, 2023 estimates placed the RTE and RTC markets at US$ 847.69 million and US$ 490.85 million, respectively. Forecasts indicate strong growth, with RTC projected to expand at 16.2 per cent CAGR and RTE foods to reach US$ 3198.81 million by 2032 at a CAGR of 15.90 per cent. Urbanization, rising disposable incomes, time-poor lifestyles, and the spread of online food services are among the strongest growth drivers. Consumer decisions are shaped by social influences as well as market availability, reflecting the interplay of convenience and cultural acceptance.

Consumer Preferences and Influencing Factors

Convenience and time efficiency are the leading factors motivating consumers toward RTC meals. For millet-based products, determinants such as price, taste, packaging, and brand image strongly shape purchasing behaviour. Discounts and promotions appear less persuasive compared to sensory appeal and cost considerations. (Vahini M K et al., 2023) Higher-income households and older consumers are more willing to pay a premium for millet-based foods because of their health benefits (Pravallika et al., 2020). While rural buyers tend to prioritize affordability, urban consumers are attracted by nutrition and wellness values.

Millet flakes, particularly those made from little millet, have gained popularity due to their long shelf life and favourable texture. (Shukla, K. and Srivastav, S. 2011) Urban buyers associate millets like foxtail and little millet with health-conscious diets, while rural populations treat them as everyday staples. Sources of awareness include social media campaigns, peer recommendations, and growing recognition of their role in managing diabetes (Mohanraj et al., 2023). For RTC foods, convenience, preparation ease, and satisfaction outweigh cost concerns. Manufacturers are encouraged to adopt attractive packaging and strategic promotions to capture consumer attention (Takhellambam et al., 2016). Although taste and affordability can influence decisions negatively, the core driver remains health benefits. In today's fast-paced context, RTE foods are especially valued for reducing cooking time, making them a highly attractive option for working families.

Conclusion

Millets, with their nutritional superiority, resilience to climate stress, and cultural importance, represent a strong opportunity for addressing nutritional insecurity and strengthening global food systems. The surge in RTE and RTC millet-based products shows how traditional crops are being adapted to modern lifestyles. Health considerations, convenience, and time savings are the strongest motivators for consumption, while taste and cost remain barriers for some consumers. For rural buyers, affordability is key; for urban consumers, wellness and lifestyle alignment dominate choices. Awareness initiatives, appealing packaging, and targeted marketing strategies that highlight millet's role in managing lifestyle diseases can further enhance acceptance. As time-scarcity intensifies, millet-based convenience foods are likely to shift from niche markets into mainstream diets, thereby improving public health and supporting sustainable agricultural growth.

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