

# foodtech insider

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## — INTRO

# All about staying ahead of the food curve

Foodtech Insider, a periodical publication dedicated to showcasing the latest trends, advancements, and breakthroughs in the dynamic food technology sector. As a platform tailored for industry professionals, investors, and enthusiasts, we provide valuable insights into the ever-evolving landscape of the Food & Beverage industry, both locally in India and on a global scale.

Embark on a journey through the realm of food technology with Foodtech Insider, your go-to online destination for all things foodtech. Discover innovations and transformative breakthroughs that are shaping the future of the F&B industry. Whether you are a seasoned industry expert, an investor seeking valuable insights, or simply passionate about the evolution of food, our platform is designed to keep you informed and inspired with the latest industry trends.





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# From Artisanal to Mainstream: The Meteoric Rise of Sourdough

The global sourdough market is experiencing significant growth, driven by increasing consumer demand for naturally fermented and clean-label bakery products. This trend is expected to drive the market from USD 279.6 million in 2025 to USD 438.4 million by 2035, with a compound annual growth rate (CAGR) of approximately 4.6% during the forecast period. The shift from artisanal to mainstream bakery products is largely driven by health-conscious consumers who prefer sourdough for its digestive benefits, higher fibre content, and improved nutrient absorption compared to traditional processed bread.

Sourdough is increasingly seen as a gourmet product, celebrated for its unique taste and texture. There is a rising demand for aged sourdough, multi-stage fermented loaves, and region-specific cultures. Bakeries are enhancing their premium appeal by offering longer fermentation times, locally milled flours, and signature starter cultures. Consumers are willing to pay a premium for artisanal breads that deliver a distinctive culinary experience, prompting brands to emphasize authenticity and transparency in their fermentation processes. The luxury retail and food service sectors are collaborating to create high-margin sourdough products, leveraging visual storytelling and origin-based differentiation to strengthen the global premium image of sourdough.

### **Digestive Wellness and Functional Breads**

The growth of sourdough is also tied to its perceived health benefits. Consumers associate the long fermentation process with improved digestibility, reduced gluten sensitivity, and enhanced nutrient absorption due to lower phytic acid levels. Brands are capitalizing on this trend by producing sustainable sourdough with low glycemic indexes, probiotics, and natural fibres. They incorporate sprouted grains, ancient wheat like einkorn and spelt, and functional ingredients such as chia, flax, and psyllium husk to create more nutritious products. Additionally, manufacturers are focusing on reduced sodium and clean-label formulations to appeal to consumers who avoid artificial preservatives.

### **Convenience and Industrial-Scale Production**

There is an increasing demand for convenient, on-the-go sourdough products, with consumers seeking pre-sliced loaves, mini sandwich bread, wraps, and crispbreads. Food manufacturers are adapting fermentation processes to replicate the taste and texture of traditional sourdough in products with longer shelf lives. Techniques such as vacuum sealing, modified atmosphere packaging (MAP), and natural mold inhibitors are employed to maintain quality while extending shelf life. Industrial-scale production relies on frozen and pre-fermented sourdough bases, enabling large bakery chains and restaurants to offer consistent, high-quality sourdough without requiring artisanal expertise.

## **Market Structure and Growth Projections**

The global sourdough market is segmented into three tiers. Tier 1 players, including Puratos, Lesaffre, Lallemand, Aryzta AG, and CSM Bakery Solutions, dominate the market with advanced technologies and extensive distribution networks. Tier 2 companies focus on traditional techniques and high-end positioning, while Tier 3 consists of independent bakeries emphasizing handmade, fresh-baked products. The market is expected to grow significantly, with emerging markets adopting Western-style artisanal breads and driving demand for sourdough.

## **Regional Insights and Future Trends**

Countries such as the United States, Germany, and France are expected to exhibit high consumption rates, with CAGRs of 3.8%, 2.9%, and 2.5%, respectively, through 2035. India stands out with a projected CAGR of 8.2%, positioning it as a key growth market. The increasing preference for gluten-free sourdough, packaged convenience, and multi-nutritional diversification presents lucrative opportunities for investors. As consumers continue to prioritize health and convenience, the sourdough market is poised for sustained growth, driven by innovations in functional sourdoughs, hybrid formulations, and extended fermentation methods.

## **Challenges and Opportunities**

Despite its growth potential, the sourdough market faces challenges such as high production costs, prolonged fermentation times, and maintaining quality at an industrial scale. However, advancements in fermentation technology and automation have enabled large-scale production without compromising quality. The trend toward clean-label and organic products, combined with progressive ingredient sourcing, ensures a sustainable future for sourdough in the bakery industry. As consumers increasingly seek healthier, more flavorful options, sourdough's versatility and nutritional benefits position it as a leading choice in the global bakery market.



# — Processing Aids: Unseen Agents of Efficiency in Food Processing



Processing aids are substances used during food manufacturing to achieve specific technological goals, such as improving efficiency, consistency, or safety. Unlike food additives, they are not intended to remain in the final product and are typically removed or deactivated during production. Examples include release agents (e.g., oils on baking pans), filtration aids (e.g., diatomaceous earth), anti-foaming agents, and antimicrobials. These aids are governed by the principle of quantum satis-used minimally to achieve their purpose-and are not labeled on products unless they contain allergens.

The primary purpose of processing aids is to enhance food production efficiency, quality, and safety.

They help improve product consistency, extend shelf life, facilitate packaging, and maintain food wholesomeness. For instance, antimicrobials are used in produce washes to enhance safety, while pH regulators ensure stability in certain products. Processing aids are widely used across various food categories, including bakery items, confectionery, jams, meats, and beverages.

Regulatory bodies like the U.S. Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA) oversee their use, ensuring they are “Generally Recognized as Safe” (GRAS). This means their safety is supported by scientific evidence and expert consensus. Despite their benefits, ethical considerations arise, particularly regarding consumer transparency, potential health risks, and dietary preferences. For example, vegetarians may avoid products processed with aids derived from animal fats, while others may seek clarity on their use in halal or kosher foods.

Looking ahead, the role of processing aids in food production is likely to evolve with advancements in technology and consumer expectations. Innovations in formulation and application could make them more effective and ethical, while improvements in processing equipment may reduce their necessity. However, their importance in ensuring food safety, quality, and efficiency ensures they will remain a vital part of the industry. Companies may also prioritize transparency by listing processing aids on labels, aligning with growing consumer demand for clarity. Ultimately, the responsible use of processing aids balances efficiency, safety, and ethical considerations, ensuring they continue to support the production of safe, high-quality food products.

Processing aids are widely used across the food industry. Examples include:

- Release agents: Fats or oils applied to baking pans to prevent sticking.
- Filtration aids: Substances like diatomaceous earth used to remove impurities from liquids.
- Anti-foaming agents: Chemicals that reduce foam during fermentation processes.
- Antimicrobials: Used in produce washes to enhance shelf life and safety.



# Greenwashing in the Food and Beverage Industry

Greenwashing, a misleading marketing tactic, has become more prevalent in the food and beverage sector. This approach involves businesses overstating or inventing their environmental initiatives, often valuing the look of sustainability over actual efforts. As consumer interest in eco-friendly products increases, some companies take advantage of this trend through deceptive strategies. Greenwashing manifests in various forms across different industries, such as food, fashion, and beauty. In the food and beverage sector, companies often leverage marketing and packaging to mislead environmentally conscious consumers. The rising popularity of veganism and heightened climate awareness among younger generations have motivated traditional food brands to adapt. However, instead of making substantial changes, some brands opt to rebrand unhealthy or environmentally damaging products as "natural" through green packaging or vague claims, taking advantage of consumers' limited knowledge.



Although greenwashing has been thoroughly examined in Western contexts, its characteristics in South Asia have not been adequately studied. The unique challenges and traits present in the region's food and beverage industry require additional exploration. Gaining insight into these specifics is essential for effectively tackling greenwashing in this area.

**Combating Greenwashing:** Consumer Knowledge and Engagement  
Consumers play a vital role in combating greenwashing. By taking the following steps, they can make more informed decisions and hold companies accountable.

**Scrutinize Packaging:** Examine product labels instead of solely relying on eco-friendly packaging. **Research Green Practices:** Investigate the sustainability claims and certifications of companies. **Enhance Your Understanding:** Familiarize yourself with key sustainability concepts. **Make Informed Decisions:** Opt for plant-based diets, support local businesses, and reduce plastic consumption.

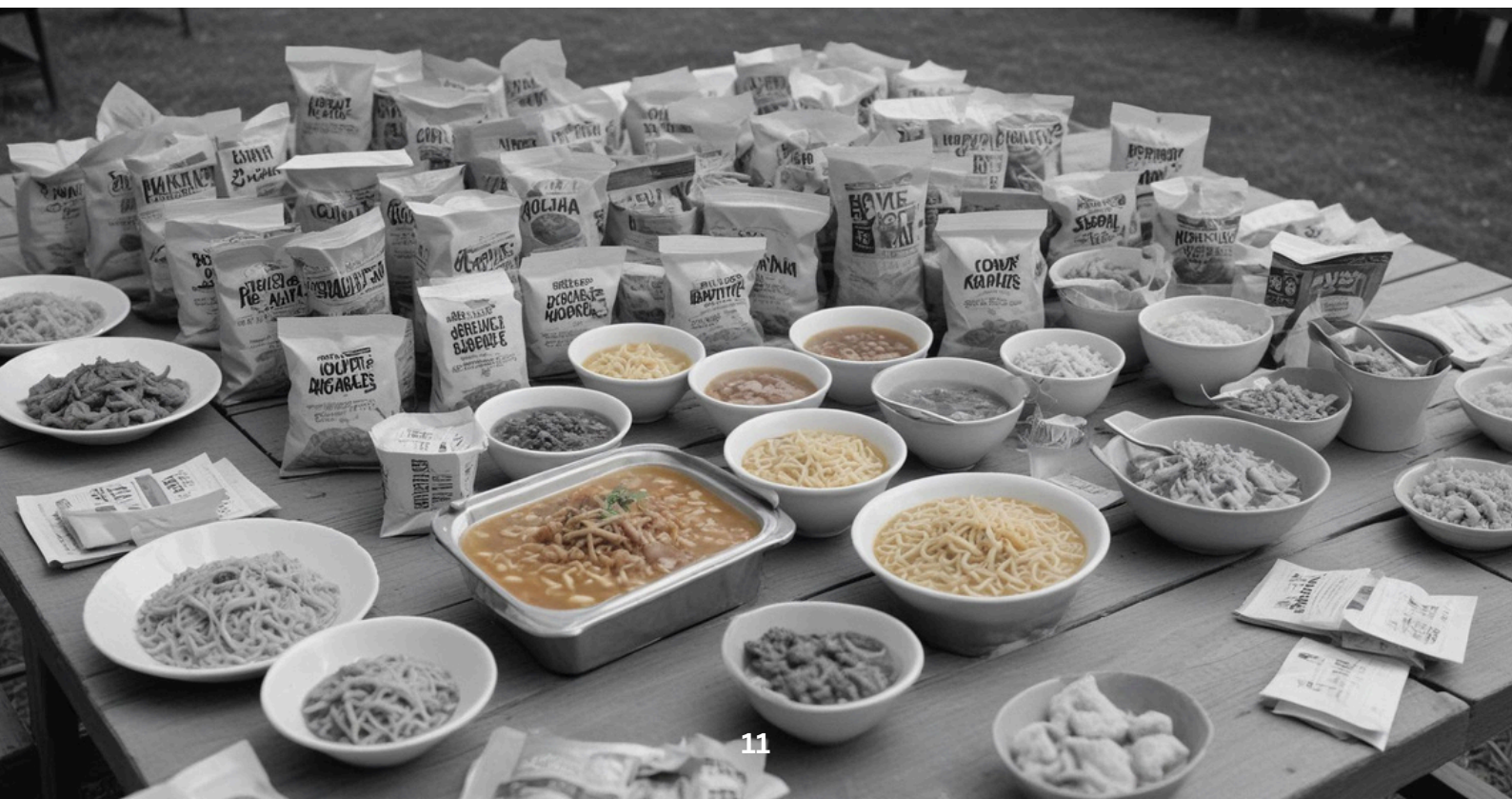
**Regulatory Measures:** The European Union's Strategy  
The European Union leads the fight against greenwashing through regulatory initiatives. The EU Commission has proposed a new green claims law that mandates companies to substantiate their environmental claims with reliable data. This regulation requires that all sustainability labels be verified by a certification scheme or defined by a public authority, fostering increased transparency and accountability.

**Industry Response:** Embracing Genuine Sustainability As consumer awareness regarding environmental issues heightens, food and beverage companies must demonstrate a real commitment to sustainability. A study by McKinsey and NielsenIQ found that products with Environmental, Social, and Governance (ESG) claims experienced a cumulative growth of 28% over five years, compared to 20% for products lacking such claims. To address greenwashing concerns and earn consumer trust, companies should.

Align ESG Claims with Tangible Actions: Ensure sustainability claims reflect a comprehensive strategy. Source Responsibly: Partner with certified suppliers and prioritize sustainable ingredients. Support Small Farmers: Invest in initiatives that promote sustainable agriculture. Communicate Transparently: Clearly share sustainability efforts with consumers.

### Conclusion

Greenwashing continues to be a significant challenge in the food and beverage industry, especially in regions like South Asia where research is sparse. However, a combination of regulatory actions and growing consumer awareness is pushing companies toward more authentic sustainability practices. By embracing transparency, implementing concrete environmental improvements, and aligning with consumer values, food and beverage businesses can build trust, differentiate themselves in the marketplace, and contribute to a more sustainable future.



# Locust Bean Gum and Beyond: Unlocking the Potential of Carob Seed Components



The Carob Tree is distinctive, as it is a legume that grows in the form of a tree. Unlike typical legumes like peas and beans, carob is a member of the *Caesalpinioideae* subfamily, which is primarily composed of woody trees and shrubs that produce tough and often inedible fruit pods.

The anatomy of the carob seed consists of three main components: the germ (the embryo), the endosperm (a nutrient-dense tissue), and the husk (a protective outer layer). Because of the husk's remarkable hardness, industrial processing requires specialized techniques, including chemical treatments like the application of sulfuric acid, to effectively separate these components.

## Industrial Applications -

**1. Locust Bean Gum (E-410) :** To produce Locust Bean Gum (LBG), the outer husk of the seed is first removed, generally through acid or heat treatment, followed by splitting the seed to segregate the fragile germ from the durable endosperm. The endosperm is then milled and processed into the final gum powder. Once isolated, the endosperm is ground to create locust bean gum, a hydrocolloid that is widely used as a thickener, stabilizer, and emulsifier in food products such as ice cream and gluten-free baked goods.

Chemically, LBG is composed of a galactomannan polysaccharide with a mannose backbone and galactose side branches. It has a high ratio of mannose to galactose (approximately 3.5:1), which is greater than that found in other commercial galactomannans like guar gum and tara gum. This structural characteristic affects its solubility and functional capabilities: LBG is only partially soluble in cold water and requires heat to fully dissolve, which is critical for attaining its maximum thickening and water-binding efficiency.

In the food industry, LBG is highly prized for forming viscous solutions at low concentrations, stabilizing emulsions, and serving as a fat replacer. It finds application in a variety of products, including dairy items (like ice cream and yogurt), bakery products, sauces, beverages, and gluten-free mixes. Its non-ionic characteristic ensures stability across varying pH levels as well as in the presence of heat and salts. Additionally, LBG demonstrates synergistic effects when combined with other hydrocolloids such as xanthan gum and carrageenan, which enhances gel strength and elasticity.

As LBG is considered GRAS, so beyond food it finds applications in cosmetics, pharmaceuticals, and even pet foods due to its thickening, stabilising, and binding properties.



## 2. Pulp Utilization :

- **Animal Feed** : Carob pulp is often kibbled into coarse pieces or ground into flour for livestock feed, praised for its high content of fiber and sugar.
- **Cocoa Substitute** : When subjected to controlled roasting, the pulp develops flavor characteristics similar to cocoa, featuring a rich, caramel-like taste. Following this process, grinding and sieving produce carob flour, which is prevalent in health-oriented food formulations such as energy bars, beverages, and confections. After roasting, standardizing the particle size via mechanical sieving ensures consistency in carob-derived products. This step is essential for applications that require specific textural and solubility attributes, such as instant beverages or bakery mixes.



Elevate the Experience

# Innovative Recipes for Foodtech Enthusiasts

## Neutral Glaze



| Ingredients        | Amount % | Procedure  |
|--------------------|----------|--|
| Sugar              | 460      | <ul style="list-style-type: none"><li>• Weigh all the ingredients.</li><li>• Mix pectin and sugar and add into heating water (a) gradually with continuous mixing.</li><li>• Bring the mixture to a boil and add Corn Syrup and boil again.</li><li>• Check for desired °Brix</li><li>• Mix (b) Water with citric acid until dissolved, add solution to the boiled mixture and stir.</li><li>• Cover and let rest for overnight.</li></ul> |
| (a) Water          | 363      |  |
| Corn Syrup - 55°Bx | 165      |  |
| Citric Acid        | 2.5      |  |
| HM Pectin          | 5.5      |  |
| (b) Water          | 4        |  |
| TOTAL              | 1000     |  |

# Empowering Consumers: FSSAI Launches Tool to Report Misleading Food Claims

Reporting misleading food claims to regulatory authorities is crucial, as such claims can mislead consumers, compromise public health, and diminish trust in the food industry. Misleading labels and advertisements may falsely promote health benefits or conceal harmful ingredients, causing people to make uninformed choices that could adversely affect their well-being. Regulatory oversight ensures that food claims are supported by scientific evidence and adhere to legal standards, thereby protecting consumers from fraud and preventing dishonest companies from gaining an unfair advantage. By reporting misleading claims, consumers help create a transparent marketplace, promote accountability, and support efforts to maintain the integrity and safety of the food supply.



|                               |            |
|-------------------------------|------------|
| <b>Total Fat</b> 17g          | <b>27%</b> |
| Saturated Fat 4.5g            | <b>23%</b> |
| Trans Fat 0g                  |            |
| <b>Cholesterol</b> 10mg       | <b>4%</b>  |
| <b>Sodium</b> 680mg           | <b>28%</b> |
| <b>Total Carbohydrate</b> 37g | <b>12%</b> |
| Dietary Fiber 2g              | <b>9%</b>  |
| Sugars 4g                     |            |
| <b>Protein</b> 12g            |            |
| Vitamin A 6%                  |            |

To empower consumers, the Food Safety and Standards Authority of India (FSSAI) has introduced a digital platform for reporting misleading or false claims on packaged food labels. Complaints can be submitted through the Food Safety Connect mobile app or the Food Safety Compliance System (FoSCoS) portal. This initiative aims to enhance transparency, uphold consumer rights, and strengthen food safety regulations across the country.

The reporting system allows users to provide key details, such as front-of-pack images highlighting the misleading claim, the manufacturer's FSSAI license or registration number, and the e-commerce URL if the product is sold online. These details enable regulatory authorities to take swift, evidence-based action against non-compliant Food Business Operators (FBOs).

This consumer-focused initiative builds on the Food Safety and Standards (Advertising and Claims) Regulations, 2018, and the Labelling and Display Regulations, 2020, which require that all claims on food products be truthful, clear, meaningful, not misleading, and scientifically validated. It also complements the work of FSSAI's Advertisement and Claims Monitoring Committee, which monitors the accuracy of claims made on food labels and in advertisements. By enabling direct consumer participation, this new reporting tool strengthens grassroots vigilance and supports the integrity of food labelling in India.

FSSAI encourages the public to actively engage with this initiative to foster a culture of honesty in food labelling and contribute to a healthier, better-informed society.

# Oxygen Absorbers: Solutions for Food Preservation and Quality Control



Oxygen absorbers, also known as oxygen scavengers, are small packets designed to remove oxygen from sealed packaging, thereby preserving the quality and extending the shelf life of various products, particularly food items. These packets typically contain a mixture of iron powder and a catalyzing salt, sometimes combined with activated carbon. Together, these components work to chemically bind and eliminate oxygen from the surrounding environment.

**How Oxygen Absorbers Works** - The core mechanism behind oxygen absorbers involves a straightforward chemical reaction: when exposed to oxygen and moisture, the iron powder inside the packet oxidizes and forms iron oxide (rust). The presence of salt acts as a catalyst, accelerating this reaction even in low-humidity conditions. As the iron absorbs oxygen, the level of oxygen inside the sealed container drops rapidly, often reaching less than 0.01%—a threshold low enough to prevent spoilage, discoloration, and the growth of aerobic bacteria and fungi. In some advanced formulations, activated carbon is included to absorb gases and odors, further enhancing product preservation.

### Benefits and Applications

Oxygen absorbers are widely used in the food industry to maintain freshness, flavor, and nutritional value. They are commonly found in the packaging of dried fruits, nuts, jerky, baked goods, coffee, tea, and dehydrated foods. By minimizing oxygen exposure, these packets help prevent rancidity in oils, inhibit mold growth, and preserve the color and aroma of food products. Beyond food, oxygen absorbers are also used in pharmaceuticals, electronics, and even museum artifact storage to prevent moisture and oxygen-related damage.

- **Extended shelf life:** By reducing oxidation, products remain fresh longer and are less prone to spoilage.
- **Preserved nutritional quality:** Essential nutrients, especially sensitive vitamins like A, C, and E, are better retained.
- **Protection against pests and microorganisms:** Lower oxygen levels inhibit the growth of mold, bacteria, and insects.
- **Prevention of discoloration and off-flavors:** Oxygen absorbers help maintain the original taste, aroma, and appearance of foods.

### How to Use Oxygen Absorbers

Using oxygen absorbers is straightforward: simply place the appropriate number and size of packets into an airtight container with your product and seal it. The quantity needed depends on the container's volume and the amount of air present. It's important to use food-grade packaging and to match the absorber size to the packaging to ensure effective oxygen removal. Oxygen absorbers should be kept in a cool, dry place until use, and once opened, they should be used quickly to avoid premature activation.

### Safety and Precautions

Oxygen absorbers are safe when used as directed, but the packets should never be ingested or punctured, as the iron powder inside can be harmful if swallowed. Always keep them out of reach of children and pets, and only use them in packaging intended for food or other sensitive products.

### **Types and Innovations**

While iron-based absorbers are the most common due to their effectiveness and affordability, other types exist for specialized applications. Organic compound absorbers, enzyme-based variants, and even oxygen-absorbing films integrated directly into packaging materials are available for products with unique preservation needs. These innovations provide alternatives for industries looking to avoid loose packets or meet specific regulatory or product requirements.

### **Conclusion**

Oxygen absorbers are essential tools for anyone aiming to extend the shelf life and maintain the quality of packaged products. By removing oxygen, they prevent spoilage, preserve nutritional value, and protect against pests and microorganisms. When used correctly, they offer a simple, effective, and safe solution for food storage, pharmaceuticals, electronics, and more.



# Schedule of Events

Discover the World of Professional expertise,  
innovation, and culinary mastery.

| Event Name                                      | Dates                    | Venue                              |
|---|--------------------------|------------------------------------|
| Pack Vision Expo                                | 16-18 May, 2025          | PIECC, Pune                        |
| International Health, Sports & Fitness Festival | 30-31 May & 1 June, 2025 | Pragati Maidan, New Delhi          |
| Bakery Business                                 | 18-20 June, 2025         | Hitex Exhibition Center, Hyderabad |
| FI India  | 3-5 September, 2025      | IEML, Greater Noida                |
| World Food India                                | 25-28 September, 2025    | Pragati Maidan, New Delhi          |





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