



# Shaping the Future of Sweet Proteins on a Global Scale

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February 2024





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# Introduction

## Brief Introduction To Sweet Proteins

Sweet proteins are natural proteins found in various plants, known for their ability to taste sweet, often sweeter than sucrose, yet with minimal calories.

### Sweet proteins are of significant interest for several reasons

	Intense Sweetness even in small quantities			Natural Origin of sweet proteins	
	Low Caloric Impact, no spike in blood sugar			Potential Health Benefits beyond their sweetness	

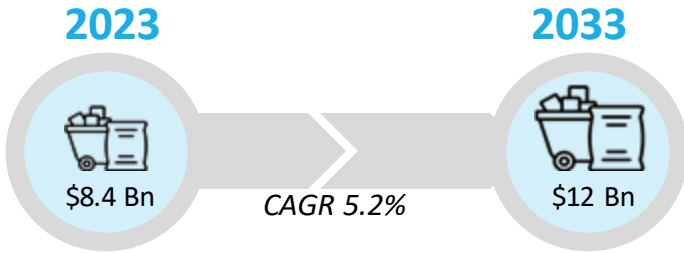
## Importance of Sweet Proteins in Addressing Global Health and Sustainability Challenges

Healthier, Natural, and Low-calorie Sweetening Alternatives	Reduction in Excessive Sugar Consumption	Market Opportunities for Small-scale Producers	Promotion of Biodiversity in Agricultural Systems	Sustainability in Agriculture
01 	02 	03 	04 	05 

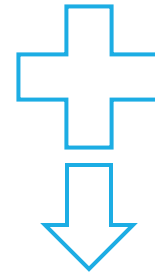
# Global Market Overview

Globally, alternative sugar market is growing at a rate of 5% in comparison to that of the sugar markets of 1%

## Global Sugar Alternative Market Size

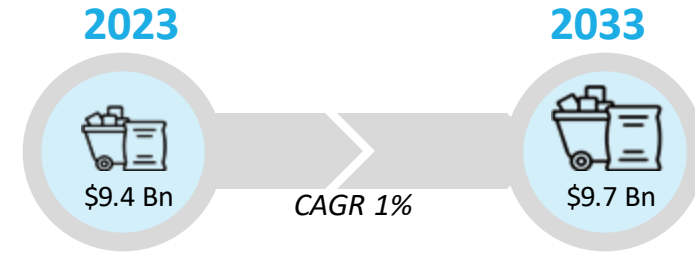


With 10% conversion rate from sugar alternative market (\$8 Bn), the expected Sugar Alternative Market will be \$800 Mn



**Target Addressable market**  
**\$ 6,4 Bn**

## Global HFCS Market Size



With 6% Target Conversion for Brazzein, the expected Sugar Alternative Market will be \$5.6 Bn

## Key Market Players

**Sweegen**

Sweegen



**Oobli**

Oobli



Magellan Life Science



**TATE & LYLE SUGARS** | ASR

Tate & Lyle Sugars

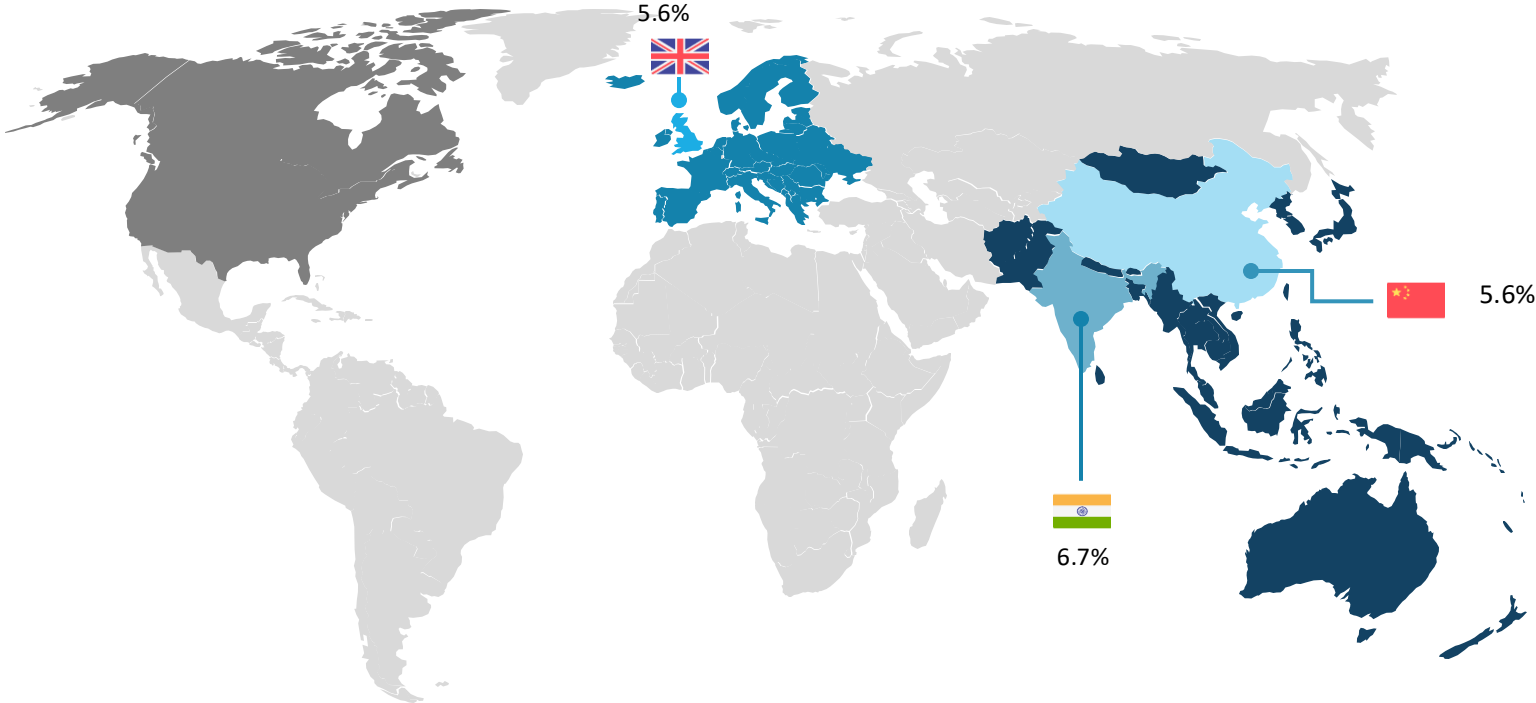


**B·R·A·I·N**

BRAIN Biotech AG



# Global Market Overview



India, UK, and China exhibit CAGR growth rates of 6.7%, 5.3%, and 5.3%, respectively. The natural sweeteners market is significantly influenced by key players in North America, Europe, and the Asia Pacific region.

# Economic Significance

## Economic Benefits Of Sweet Proteins Over Traditional Sweeteners



Cost-Effectiveness



Stable pricing due to reduced commodity market reliance



Reduced Healthcare Costs



Market Differentiation and Brand Loyalty

## Potential Impact On Global Sugar Markets And Traditional Agriculture



Reduction in Sugar Consumption



Shift in Agricultural Practices



Market Disruptions causing fluctuations in sugar prices and trade dynamics



Environmental Benefits by reducing impact of traditional agriculture



Innovation and Adaptation in the agriculture and food processing sectors



# Investment Landscape (1/2)


## Overview of Investment Trends In the Sweet Protein Sector




## Key Financial Players And Their Roles In Shaping The Industry



**Venture Capital Firms (VCs)**  
Provide growth-stage funding to startups companies focused on sweet protein to help them navigate challenges, achieve milestones, and scale their businesses



**Angel Investors**  
Facilitate connections between investors and promising sweet protein ventures









**Public Investments**  
Public funding through government agencies for sweet protein projects promoting health, sustainability, and development.

# Opportunities

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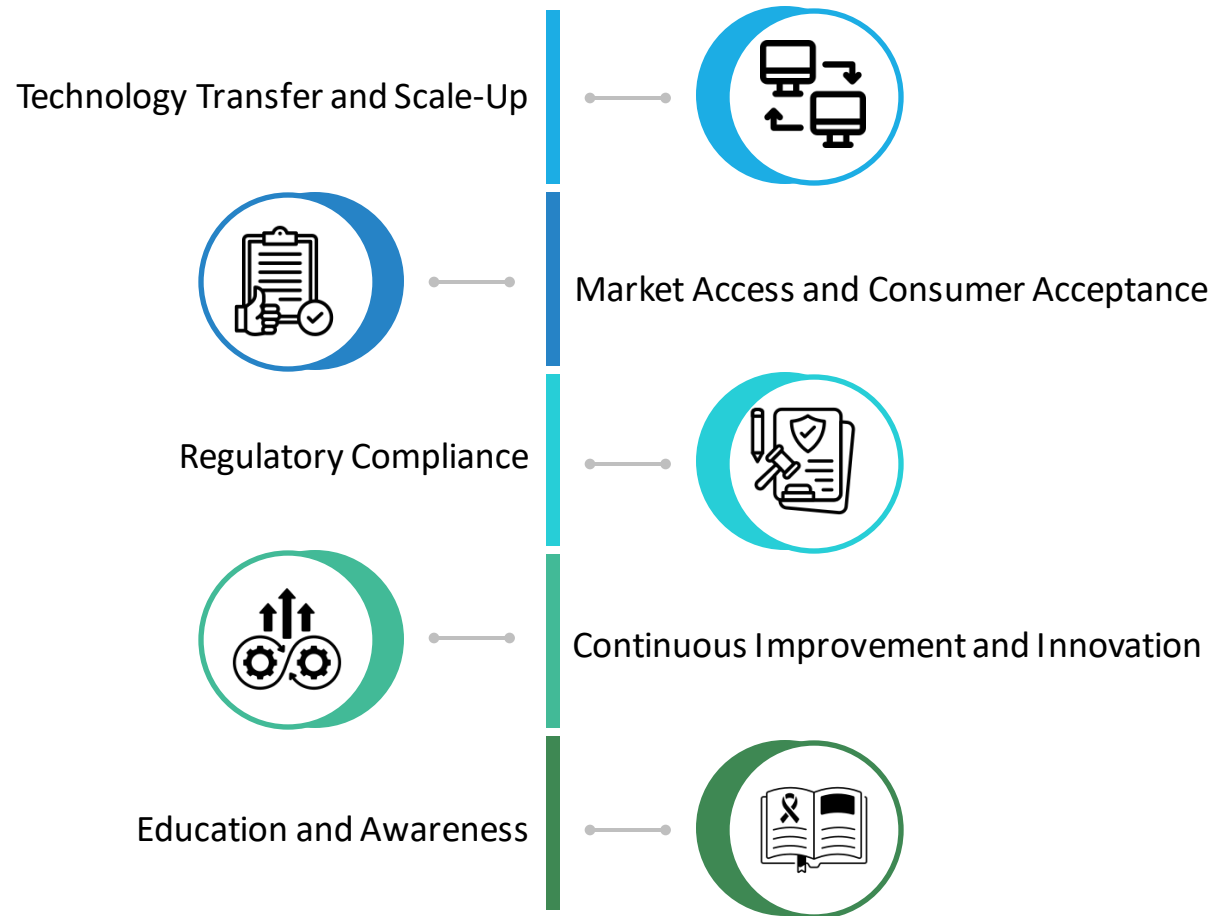
## Opportunities For Innovation In Product Development And Market Expansion

-  New Sweet Protein Sources from plants and other natural sources
-  Improved Extraction and Purification Techniques for sweet proteins from plant sources
-  Market Diversification and Global Expansion
-  Clean Label and Natural Products
-  Development of innovative functional foods and beverages
-  Precision fermentation offers innovative potential for efficient, sustainable sweet protein production with precise control over product attributes.



# Strategic Alliances and Partnerships (1/2)

## Importance Of Collaborations Between Biotech Firms, F&B Companies, And Regulatory Bodies



## Examples Of Successful Partnerships

- 1 Tate & Lyle and Sweet Green Fields
- 2 Ingredion and SweeGen
- 3 Cargill and Evolva
- 4 Chr. Hansen and Givaudan
- 5 BASF and Conagen

# Strategic Alliances and Partnerships (2/2)

## The Significance Of Strategic Alliances In Risks Mitigation And Enhancing Market Penetration

Strategic alliances allow companies to access resources, capabilities, and expertise that may be lacking internally

Risk Sharing and Cost Reduction associated with market entry and expansion

Market Insights and Intelligence

Brand Credibility Trust and reputation in the marketplace

Enhanced Market Access and Distribution channels, and customer segments that may be difficult to penetrate alone.



# Future Trends and Predictions

## Emerging Technologies That Impact The Sweet Protein Industry



Advances in biotechnology and synthetic biology



High-throughput screening technologies



Nanotechnology and Encapsulation



Artificial Intelligence and Machine Learning

## Predictions for market growth and consumer adoption rates



- The global market for sweet proteins is poised to exhibit a robust growth trajectory during the forecast period.
- This is attributable to a combination of factors including Growing consumer awareness about the multiple benefits of sweet proteins

## Vision for the future role of sweet proteins in global food systems



- Sweet-tasting protein has remarkable sweetening power, it potent sugar replacers, offer promise for improving human health by controlling obesity, diabetes, and hyperlipidemia.

# Recommendations for Stakeholders

## key recommendations for stakeholders



### Investors

1. Diversify Investment Portfolio, technology development, and market expansion.
2. Evaluate Innovation Potential of companies in the sweet proteins industry
3. Monitor Regulatory Developments related to sweet proteins
4. Assess Market Trends and consumer preferences, and competitive landscapes



### Companies

1. Invest in Research and Development to drive innovation, and expand market opportunities
2. Forge Strategic Partnerships and collaborations
3. Embrace Sustainability
4. Educate Consumers and Stakeholders



### Policymakers

1. Policymakers should support research and innovation in the sweet proteins industry
2. Facilitate Regulatory Clarity and streamline approval processes for ingredients and products
3. Promote Sustainable Practices
4. Foster Market Access and Trade

## Strategies for navigating the sweet protein market



Conduct Market Research before making any investment decisions



Assess Investment Opportunities across the sweet protein value chain



Understand Regulatory Landscape



Evaluate Competitive Positioning of companies operating in the market



Stay Flexible and Adaptive because the market is dynamic and evolving



# Sustainability and Ethical Considerations



## 01 Role of sweet proteins in promoting sustainable food systems



Reduced Environmental Impact compared to traditional sweeteners



Water Conservation in regions facing water scarcity and drought conditions



Biodiversity Conservation



Promotion of Sustainable Consumption



## 02 Ethical considerations in the production and distribution of sweet proteins

1

Minimize the Environmental Impact

2

Fair Trade and Social Equity

3

Consumer Safety and Transparency

4

Cultural Sensitivity

5

Ethical Marketing and Advertising



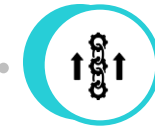
## 03 Financial incentives for sustainable practices in the industry

Government Grants



Green Financing and Loans

Supply Chain Collaboration and Incentive Programs



Market Access and Competitive Advantage

Incentives for manufacturers



# Conclusion

Sweet proteins play a significant role in the market due to their unique ability to provide sweetness without the caloric impact of traditional sugars.



Healthier Alternative to Sugar: Sweet proteins offer a natural, low-calorie alternative to sugar



Less sugar production: by reducing the environmental impact associated with sugar production and consumption



Diverse Applications: They can be used to sweeten a wide range of products, from beverages and snacks to medications and oral care products.



Increased consumer demand: With increasing consumer awareness of health and wellness

## Action points



Invest in  
Innovation



Prioritize  
Sustainability



Foster  
Collaboration



Advocate for  
Supportive  
Policies



Embrace Market  
Opportunities

# Thank You



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# Appendix



# Case Study

## Case Study Highlighting Financial Metrics

### About the company



- Oobli deliver sweet protein products.
- The company's goal is to replace sugar with nutritious sweet proteins.
- The company's protein sweeteners are reduced in calories and can be consumed without worrying about blood sugar, insulin and weight



Annual Revenue \$8.8M per year



Estimated revenue per employee  
\$155,000

### Company Profile



Number of Employees 11-50



Location Davis, CA



Estimated revenue per employee  
\$155,000

# Oobli

# Challenges

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## Technical Challenges In Production And Scaling



Sourcing and Cultivation producing can be challenging



Scale-Up Challenges related to process optimization, equipment scalability, and production efficiency



Meeting regulatory for sweet protein-based products can be complex and time-consuming



Limited stability under certain storage conditions, such as temperature, & humidity



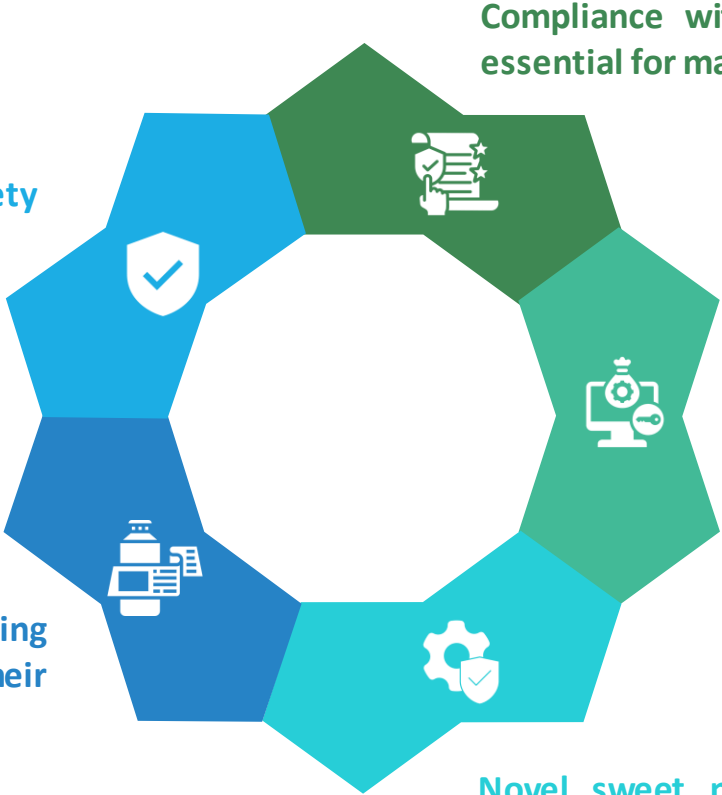
Cost Considerations can impact product affordability & competitiveness in the market

# Regulatory Landscape and Its Impact On Market Access

Before introducing the sugar alternatives in the market, some regulations and directives by the regulatory bodies should be followed

Regulatory agencies typically require safety assessments for sweet proteins

Sweet proteins must comply with labeling requirements that accurately describe their identity, purity



Compliance with regulatory requirements is essential for market access

Regulatory agencies specify permissible uses of sweet proteins in food and beverage products to ensure safety and compliance with regulatory standards

Novel sweet proteins need rigorous safety assessments for regulatory approval