

# BRAIN Biotech AG

Creating a #BiobasedFuture

BRAIN CMD 2024

Esther Gabor, Director, Head of Microbial Strain Development

## R&D spotlight

enabling sustainable food by microbial fermentation

Zwingenberg, December 12<sup>th</sup>, 2024



WE SUPPORT



Since 2021 we have been committed to the UN Global Compact corporate responsibility initiative and its principles in the areas of human rights, labor, the environment and anti-corruption.

# Safe Harbor Statement

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This document may contain forward-looking statements. These forward-looking statements are subject to risks and uncertainties, as they relate to future events and are based on current assumptions of the Company, which may not occur at all in the future or may not occur as assumed. They do not represent a guarantee for future results or performance of the Company, and the development of economic and legal conditions may materially differ from the information expressed or implied in the forward-looking statements.

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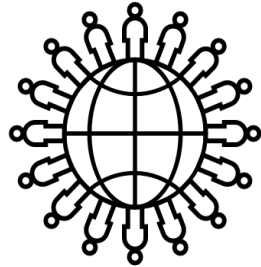
**> 30% of Global GHG Emissions**  
are caused by agriculture & food production





# The Food of the Future Will be Produced Differently

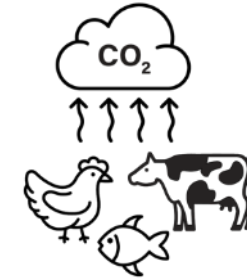
Biotechnology enables more sustainable industrial production



**9.8 billion**  
by 2050



**250 megatons**  
extra protein, vitamins & minerals



**GHG + land-intensive**  
livestock farming

Food processing, functionality & taste



**Enzymes &  
Proteins**



**Microorganisms &  
Production strains**



**Bioprocesses &  
Scale up**



**Fermented Food**

Microorganisms transform raw materials  
into attractive food

# Fermentation Enables the Implementation of Zero-Waste Strategies

Example: use of otherwise discarded vine leaves to produce a high-quality, non-alcoholic social drink



Cut-and-drop vine leaves during pruning (May)



Automated collection



Infusion



Filtration / Pressing



Pasteurisation



Screening & sensory



Up-scaling to winery



Fermentation



Prototyping „Vinot“



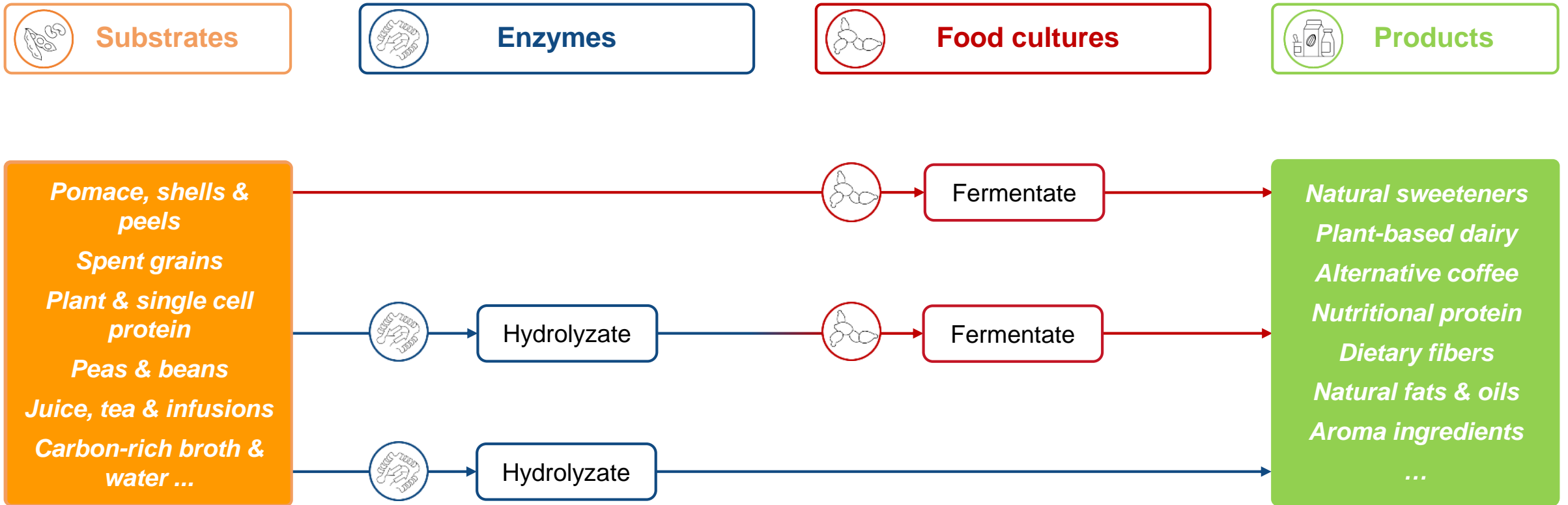
# The Power of Fermentation:

natural solutions for great tasting, healthy and sustainable foods



# BRAINBiocatalysts Offers a Comprehensive Toolbox for Fermented Food

whether tradition or innovation: longer shelf life, better flavour and functionality through fermentation



► tailored solutions for fermented food based on enzymes and microorganisms



# BRAIN Biotech Supports its Customers in the Development of New Food Products

unique resources and expertise from science to application



**microbial & enzyme screening**  
Foodlab



**prototyping**  
FSSC22000 certified environment



**tasting & evaluation**  
in-house and at customer's site

► **established pipeline for food innovation based on enzymes and microorganisms**



# BRAIN Biotech has Enabled the Development of Several Fermented Food Products

fermented foods and beverages offer a solution to different rising market trends



Clean Label

**Natural sweetener** without unpleasant aftertaste and with excellent mouthfeel from fermented stevia tea



New Products

**Non-alcoholic sparkling wine** enabled by a balanced mixture of special yeast and fermentation process



Zero-Waste

**High-value beverage** by fermentation of side-stream vine leaves from seasonal vine pruning

# BRAIN Biotech Has Created a Unique Collection of Food Microorganisms

over 750 microbial strains for application in food, feed & beyond

- Come from artisanal fermented foods
- QPS/IDF-listed or have other documented history of safe use in food sector
- Rational selection and targeted screening for desired applications



Olives, fruit & vegetables



Kefir & dairy



Fermented fish



Sourdough

> 80 Koji & edible mushrooms



Flower nectar

> 220 Yeasts

> 18 Acetic Acid Bacteria

> 125 Lactic Acid Bacteria

> 315 Bacilli



Fermented asian foods



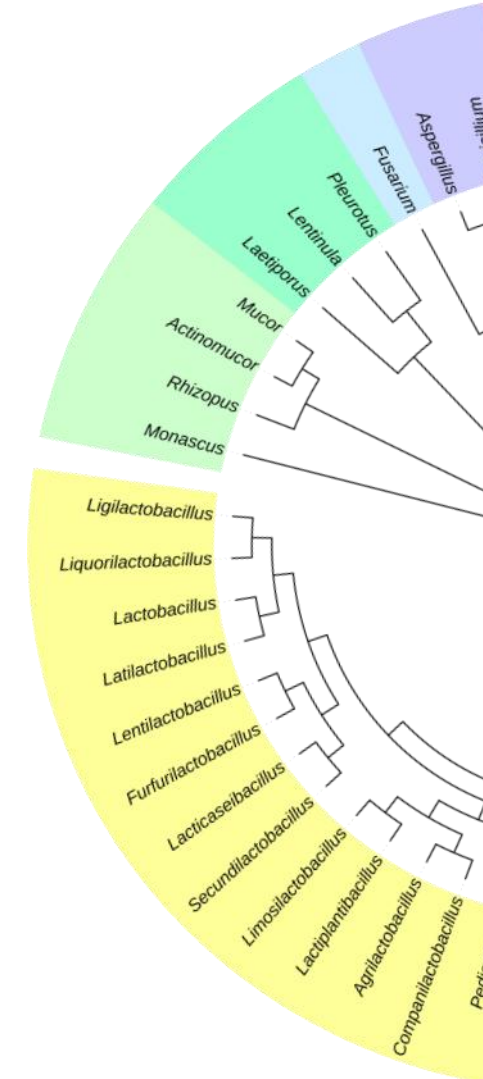
Vine & tea plant leaves



Fermented cheese



Artisanal sausages

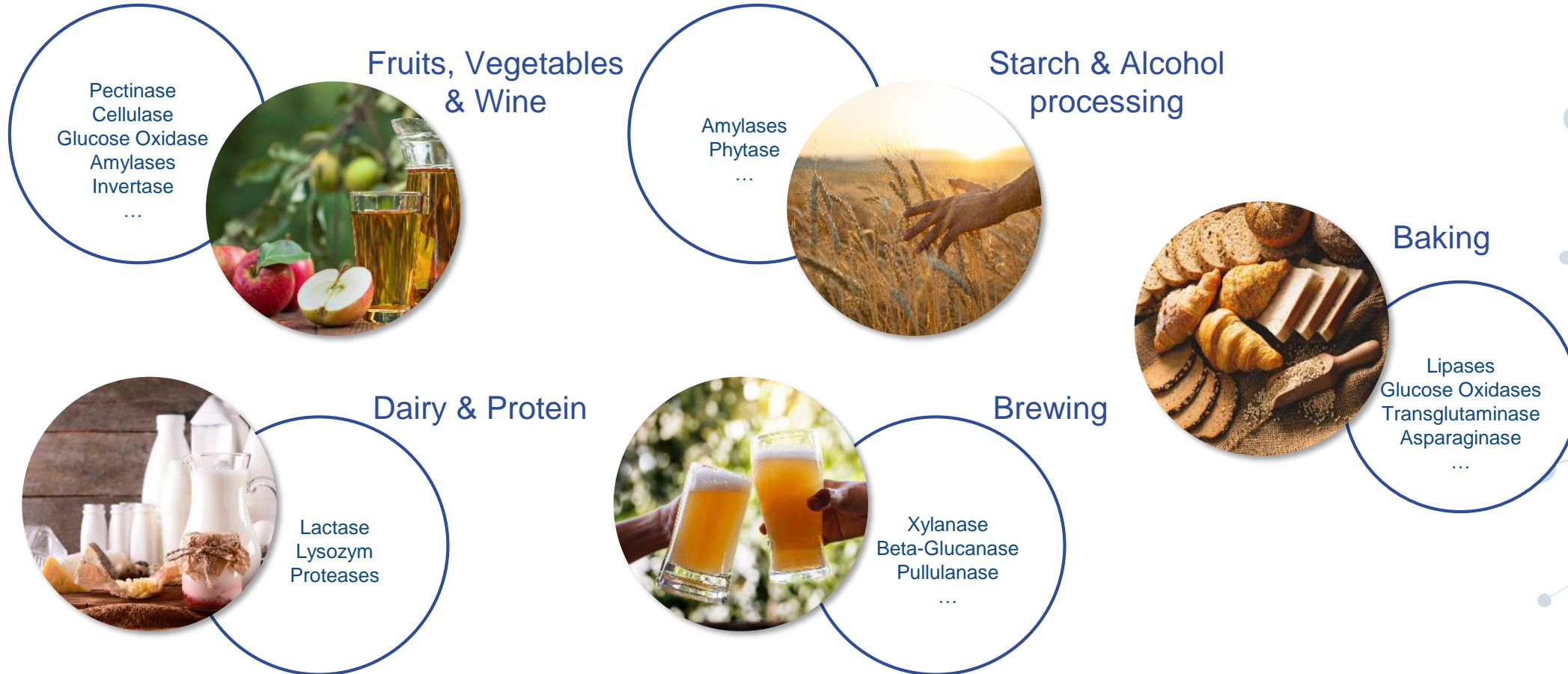


► Extensive options & direct application for fermented food products



# Enzymes Can Supplement Microorganisms in Many Applications

faster development through access to finished enzyme products suitable for the requested need



▶ numerous ready-to-use products also for non-conventional applications

# Fermented Food Offers Countless Exciting Possibilities

from zero-waste & upcycling to new foods & clean label ingredients



Specific modification of substrate properties using **enzymes**:

- ▶ we offer ready-to-use products or new enzyme solutions using our MetXtra™ platform



Food products with complex characteristics using active, **food-grade microorganisms**:

- ▶ we offer a valuable collection of diverse microorganisms to create your unique fermented food product



**Tailor-made solutions** for your application through the combination of optimal enzymes & microorganisms

- ▶ complete **R&D pipeline** available - from enzyme & microbial discovery to fermented food prototypes



# Thank you very much for your interest.



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