



# MILLBIO FOR TIA

October 24 & 25, 2023

NOVEL PLANT-BASED  
INGREDIENTS  
for  
NATURAL & CLEAN LABEL  
SHELF-LIFE EXTENSION



## AGENDA



Intro MILLBO/MILLBIO

X-TRA GUARD™ Rowan Berry Extract

Product Range fermented/cultured  
flours & Sourdough

Synergies

Conclusions

## MILLBIO VISION



## MILLBIO GROUP

**MILLBIO**, headquartered in Northern Italy (**MILLBO**), was founded in 1992 and focuses on highly innovative, clean-label and all-natural solutions for baking, food & beverage applications.

The acquisitions of **Bionaturals**, **Shanghai Biotec** and the creation of **Millbio Singapore** allowed expanding its position as a leading global player in food ingredients such as fermented/cultured flours and plant extracts addressing the increasing demand for clean-label shelf-life extension.

The group can now supply world-wide to reach global customers with a team of 8 sales managers and 3 customers services.

A state of the art laboratory service is located in Northern Italy and occupies 8 people in R&D.

MILLBIO



## THE RIGHT SOLUTION FOR YOUR PRODUCT

### COLOR



**Malts  
Mixes**



All the colors of nature to make your products even more appetizing, to eat with your eyes too.

### TASTE

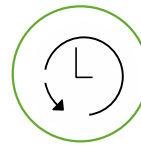


**Fermented Flours  
Sourdough  
Malts**



Natural solutions conceived to improve the aroma and flavor of bread and oven-baked products.

### SHELF LIFE

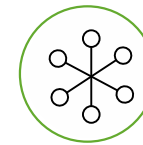


**Fermented Flours  
Plant Extracts  
Enzymes**



A range of solutions created to increase the shelf life and freshness of your products.

### STRUCTURE



**Improvers  
Enzymes**



Products for high-quality baking: from softness to crispiness.

### NUTRITIONAL



**Enzymes  
Sourdough**



Innovative solutions for increasingly good, nourishing and sustainable products.



IT ALL COMES SO  
NATURALLY



**X-TRA GUARD**



# X-TRAGUARD™

MILLBIO NATURAL  
SHELF-LIFE SOLUTIONS  
FOR FOOD & BEVERAGES

## ROWAN BERRY EXTRACT

### *Sorbus aucuparia* L.

(n.) [cent. XV; lat. Scient. sorbus]

"Latin name used in the botanical classification to indicate trees and saplings of the rosaceae pomeoides genus: The Rowan Berry Tree.

The tree has orange or scarlet fruits with a 1cm diameter from which an edible essence, much loved by birds, (Aucuparia) can be extracted".

*X-TRA GUARD is a natural ingredient which has been extracted from the Rowan berry with the use of a tapioca flour carrier.*

*It has been meticulously developed to help long shelf life products and is wholly derived from the Rowan berry's natural botanical compounds, which includes Organic Acids.*

*It protects against spoilage (yeasts & molds)*

PRODOTTO VINCITORE  
FOOD INGREDIENTS  
AWARD 2021

FOOD  
MATTERS  
live

## WHAT IS X-TRA GUARD™?

---

- ✿ **X-TRA GUARD™** is an aqueous extract from **Rowan Berries**
- ✿ Incorporating a **tapioca starch carrier** to standardize the content and to facilitate extraction and handling
- ✿ A fully cold-water-soluble version, **X-TRA GUARD™ S**, uses **maltodextrin** as a carrier.
- ✿ Possible declarations include botanical / Rowan Berry extract (Sorbus aucuparia L.), plant/fruit extract.\*
- ✿ Self-affirmed GRAS
- ✿ Kosher and Halal certified
- ✿ Available as Organic and Gluten-free

\* Declarations and labeling claims are manufacturer's responsibility





## HOW IS X-TRA GUARD™ MADE?



BERRY  
COLLECTION



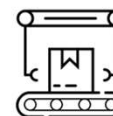
HOT WATER  
EXTRACTION



SPRAY DRYING



BLENDING  
STANDARDIZATION



PACKAGING



QUALITY  
CONTROL

# X-TRAGUARD™

A product rich in natural organic acids

## WHY AND HOW TO USE X-TRA GUARD™ ?

---

- ✿ X-TRA GUARD™ is rich in natural organic acids, in particular sorbic acid
- ✿ Sorbic acid was first discovered in the rowan berry in 1800s
- ✿ Primarily protects against yeast & mold spoilage in a wide range of applications
- ✿ Off-white, easy to handle, free flowing powder
- ✿ Overall impact on taste, aroma, texture and colour is usually minimal / not noticeable
- ✿ Interaction with other ingredients in the recipe usually minimal / not noticeable
- ✿ Recommended level of use is very application specific but broadly 1,000 to 8,000 ppm
- ✿ Guide: approx. 3 – 3.5 times the level of potassium sorbate that might be considered effective

## APPLICATION TRIAL INDUSTRIAL CAKE

### Trial

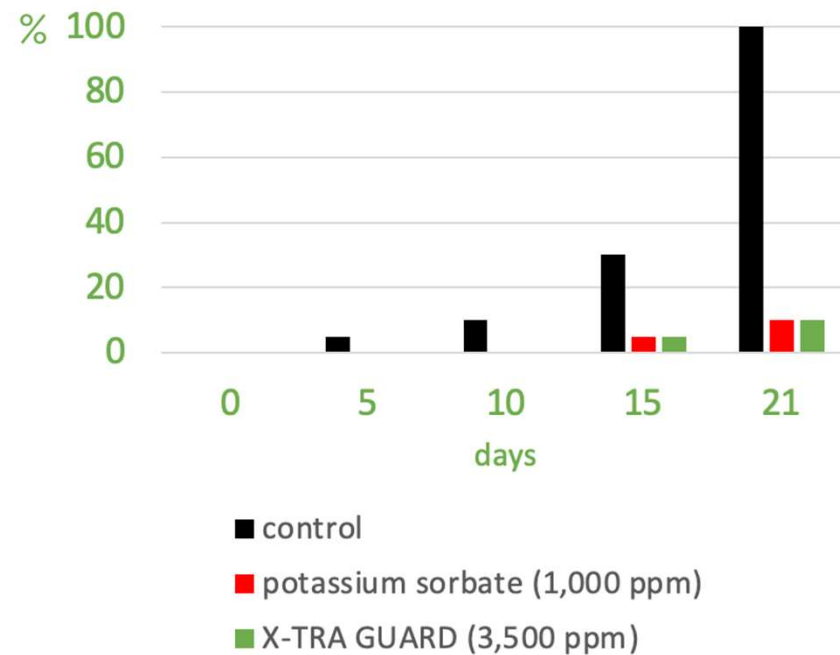
Carried out in-house trials to demonstrate efficacy in cake, inoculated a cake (industrial cake recipe with approx neutral pH) with yeast & mould strains and observed their growth over 21 days

### Cake Recipe

Rapeseed oil	21%
Egg	21%
Sugar	19.5%
Starches	16%
Wheat flour	10%
Water	9.5%
Baking powder	1.0%
Others	2.0%

### Shelf-life

#### Cake trials yeast & mold development



## APPLICATIONS & ADDING VALUE



CAKES / MUFFINS



JAMS / FILLINGS / CREAMS



TORTILLA / WRAPS / FLATBREADS

### Clean up ingredient labels

- ✿ By replacing potassium sorbate and facilitating possible claims on pack

### For existing clean-label end products

- ✿ Extend the existing shelf-life
- ✿ Facilitate product reformulation to improve the nutritional and/or organoleptic profiles
- ✿ Resolve an existing microbial spoilage issue and/or build in an enhanced inherent microbial robustness
- ✿ Allow the commercialization of new products that could otherwise be unsafe
- ✿ Facilitate reformulation of refrigerated products to make them suitable for ambient storage



SAUCES / DRESSINGS / DIPS



CHEESE / PLANT-BASED DAIRY



BEVERAGES

# MARKET EXAMPLES

## X-TRAGUARD™

Rowan Berry Extract

Rowan Extract

Rowanberry (Sorbus aucuparia L.) extract

Cake M&S, UK



a red coloured chocolate sponge cake with cream cheese frosting, finished with red velvet cake crumbs

NUTRITION	
Typical values	per 100g
Energy kJ	1784
Energy kcal	429
Fat	23.0g
of which saturates	7.9g
Carbohydrate	80.0g
of which sugars	34.5g
Fibre	<0.5g
Protein	4.7g
Salt	0.56g

Reference intake (adult)  
Energy 8400kJ/2000kcal Fat 70g  
Saturates 20g Sugars 50g Salt 6g

**STORAGE**  
NOT SUITABLE FOR FREEZING.  
For best before, see top of pack. Store in a cool, dry place. Once opened, store in an airtight container.

**INGREDIENTS**  
Sugar, Full Fat Soft Cheese (Milk) (12%), Wheatflour, Contains Gluten (with Wheatflour, Calcium Carbonate, Iron, Magnesium, Phosphorus), Eggs, Rapeseed Oil, Butter (Milk), Humectant, Glycerol, Glucose Syrup, Invert Sugar Syrup, Dried Skimmed Milk - Fat Reduced Cocoa Powder, Cornflour, Rapeseed Extract, Raising Agents: E450, Sodium Bicarbonate - (E500), E471, E473, E481 - Salt, Palm Oil - Colour E120.

For allergens see ingredients in bold. Not suitable for those with a Nut and Peanut allergy.

Made in the UK with cream cheese from Ireland.

Dressing Picadeli, Sweden

**Picadeli** Om oss Sortiment Saladsguide Hitte Picadeli Restauranger Kontakt Kundlogin

### Caesardressing

Art nr: 12711

**Ingredients:**  
Rapeseed oil, water, EGG YOLK, tarragon, parsley, salt, vinegar, wine vinegar, sugar, onion, corn starch, **rowan berry extract**, white pepper, turmeric, chili, paprika extract, natural flavor, thickener (E412, E415), acidity regulator (E330).

Please, always see the label in store for the most up-to-date list of ingredients.

Packed in: Sweden  
Origin of raw material: Mixed product, different origin of different raw materials

Jam Good Good, Iceland (US)

**Strawberry Jam 12 oz – Keto Friendly - No Added Sugars**  
\$9.99

Containing only natural occurring sugars from real fruits, our low-calorie jams have the same sweet taste without the added sugar. Combine our strawberry jam with sweet like syrup, peanut butter & oats for a healthy, grab & go breakfast.

- ✓ Made With Natural Sweeteners (Stevia & Erythritol)
- ✓ Keto & Vegan Friendly
- ✓ Suitable For Diabetics
- ✓ Includes Only Natural Occurring Sugars from Real Fruits
- ✓ No Added Sugars
- ✓ Gluten Free
- ✓ Non GMO

Click here to save up to 40% and create your own Jam Bundle

**INGREDIENTS**  
Strawberries (58%), water, sweeteners (erythritol, stevia extract), pectin, rowanberry (Sorbus aucuparia L.) extract, lemon powder, citric acid, concentrate (carrot, blackcurrant), ascorbic acid.



A stack of round, light-colored flatbreads is the central focus, resting on a dark blue textured cloth. The background features a wooden surface with scattered lentils and a bowl of lentils in the upper left. A small green herb is also visible on the cloth. The lighting is warm and directional, creating soft shadows.

INNOVATIVE BLEND  
FOR  
INNOVATIVE  
SOLUTIONS

## ADDITIONAL PRODUCTS SYNERGIES IN BAKING

### Fermented Flours SPRING X-TRA LIFE™

- Wheat
- Dextrose
- (Brown) Rice Flours \*

### Sourdough SPRING

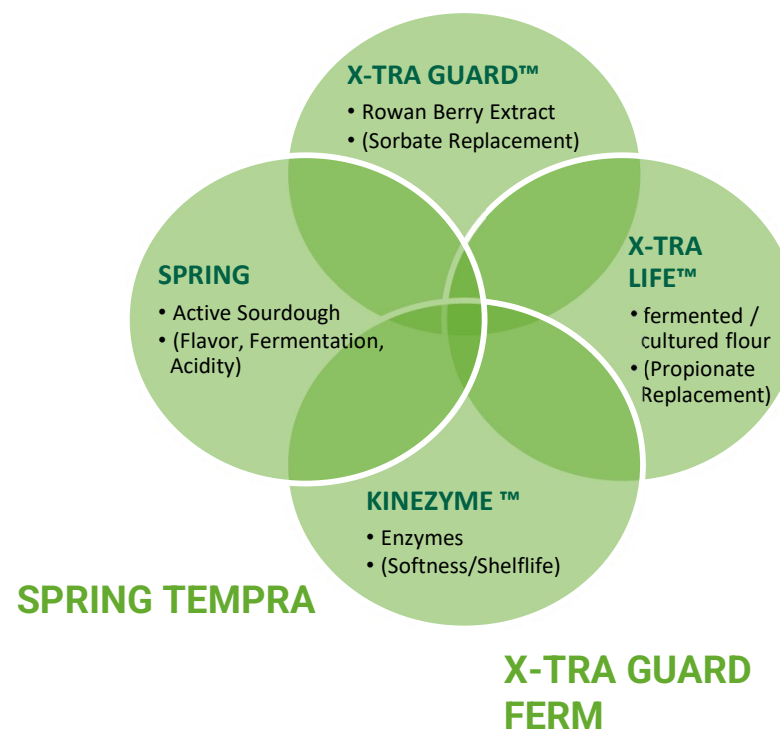
- Authentic Italian
- Natural
- Active
- Tailored Solutions

### Enzymes KINEZYME™

- Pure / Concentrated
- Diluted / Blended
- Specialties / Tailor Made

Manufactured by  
MILLBO Italy

### FERMENTA X-TRA 5





IT ALL COMES SO  
NATURALLY



# X-TRA GUARD FERM





## THE NATURAL DOUBLE FUNCTION

### BOTANICAL EXTRACT AND FERMENTED FLOUR: THE MARRIAGE

Combining two of its special products, Millbo has created an innovative solution giving extra power and effectiveness in the preservation, protection and shelf life of flat breads.

**X-TRA GUARD FERM\***, is based on a natural source of sorbate, **X-TRAGUARD** THE SHIELD FROM PLANTS fermented wheat flour, **X-TRALIFE**, and the booster effect of a specialty enzyme.

X-Tra Guard is derived from the Rowan berry by using water extraction, X-Tra Life is a fermented wheat flour rich in organic acids. Both ingredients are active in the shelf life protection of bakery products and the combination provides a complete shelf life system.

\* An international patent has been applied for this product.

## 4326 X-TRA GUARD FERM



**DESCRIPTION:** ingredient blend based on fermented flour and plant extract



**INGREDIENTS:** heat treated wheat flour, botanical extract, fermented flour, enzyme



**STORAGE:** ambient and dry (max 25°)



**PACKAGING:** 20 kg multiple paper bags with liner



**DOSAGE:** 2,0% on the total weight of the dough



**SHELF LIFE:** one year from date of manufacture



X-TRA  
GUARD

&



X-TRA LIFE

- Individual country legislation may limit the dosage on specific bakery items
- An international patent has been applied for this product



IT ALL COMES SO  
NATURALLY



# SPRING TEMPRA



## THE COMPLETE SOLUTION

FERMENTED FLOUR, SOURDOUGH & ENZYMES

Combining our expertise and understanding of flat bread industry, we created an unique solution giving effective preservation, and shelf life to the flat breads along with better sensory qualities.

**Spring Temptra**, is based on fermented wheat flour, sourdough, and enzymes giving a perfect note to your flat bread.

## 4173 SPRING TEMPRA



**DESCRIPTION:** ingredient blend based on fermented flour, sourdough and enzymes

---



**INGREDIENTS:** heat treated wheat flour, fermented flour, enzymes

---



**STORAGE:** ambient and dry (max 25°)

---



**PACKAGING:** 20 kg multiple paper bags with liner

---



**DOSAGE:** 1-3,0% on the flour weight

---



**SHELF LIFE:** one year from date of manufacture

---

- Individual country legislation may limit the dosage on specific bakery items

## APPLICATIONS

WHERE PRESERVATION and PROTECTION ARE NEEDED



TORTILLA WRAP



FLAT BREAD



PIADINA

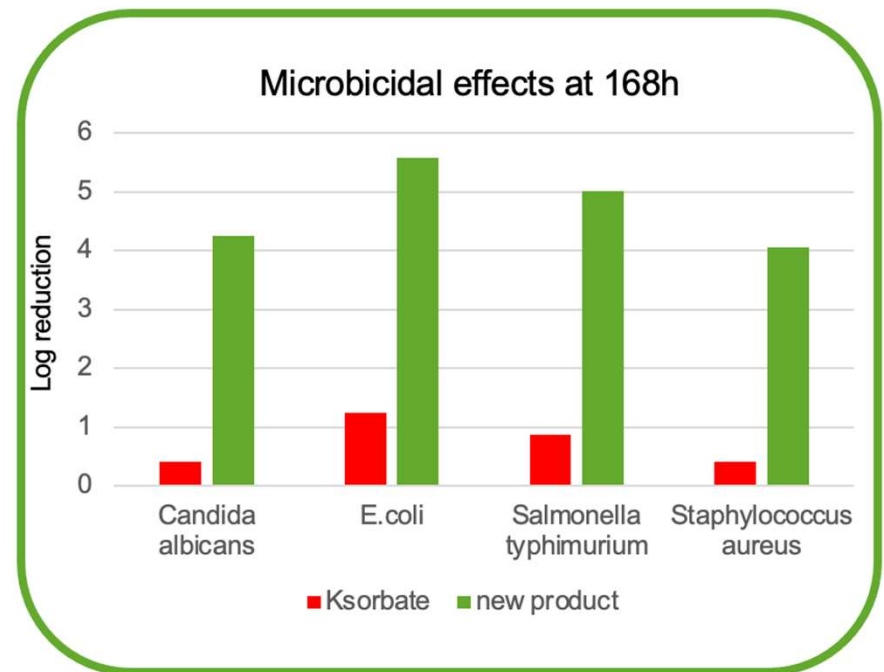
## FURTHER STUDIES & PRODUCTS



- We are carrying out studies at the University of Pavia (Pavia, Lombardy, Italy) in order to demonstrate the anti-microbial activity of various Millbio products
- These studies involve using two types of in-vitro tests and various micro-organisms
- In addition to X-TRA GUARD™ we are studying a new product designed to offer a wider spectrum of anti-microbial functionality i.e. less focused on yeasts & molds and more effective with various bacteria
- Early results are promising on a range of gram positive and gram negative bacteria (4-5 log reduction - 1 week)



UNIVERSITÀ DI PAVIA  
International



## CONCLUSION

---

### X-TRA GUARD™

- ✿ A novel, clean-label, ingredient to help manage the shelf-life (yeast and mold spoilage) in a wide range of food & beverage applications
- ✿ Provides unique and unprecedented solutions for clean-label products
- ✿ Can be used in a synergistic way with other MILLBIO products
- ✿ Research is underway to develop broader-spectrum products able to offer different solutions including the control of various bacteria



Non-warranty: the information in this document is given in good faith by Millbio for general guidance and for reference purposes only. Millbio assumes no liability in relation to the information and gives no warranty regarding the suitability of these ingredients for a particular use. The use of the ingredients by the recipient of this document, and any claims or representations made by the recipient relating to such ingredients are the responsibility of the recipient, who is solely responsible for ensuring that products marketed to consumers comply with all relevant laws and regulations.

IT ALL  
COMES SO  
NATURALLY





# Thank you!



Millbo Srl  
Via Bellaria  
28069, Trecate (NO)  
Italy  
[Info@millbo.com](mailto:Info@millbo.com)  
+ 39 0321 795911

[www.millbio.com](http://www.millbio.com)

