

PLANT-BASED



PLANT-BASED STARTERS

LALCULT® SPECIALTY LL05

Mesophilic culture

A PLANT-BASED DEDICATED MESOPHILIC CULTURE

The plant-based fermentation market is rapidly evolving, driven by the diversity of raw materials and the demand for innovative ingredients. Key challenges remain: delivering appealing flavors and meeting consumers' desire for more natural solutions. Lallemand Specialty Cultures developed

LALCULT® Specialty LL05 to address these needs—offering an acidifying culture for a wide range of plant-based applications, with distinctive, consumer-friendly flavor characteristics that set it apart from traditional thermophilic cultures.

KEY FEATURES

Versatile carbohydrate metabolism

LALCULT® Specialty LL05 is able to metabolize a wide variety of naturally occurring carbohydrates found in plant-based matrices, such as starch, maltose, dextrose, and fructose, but no sucrose.

Distinctive aromatic profile

LALCULT® Specialty LL05 has a gentle and positive impact on flavor development.

Delivers mild, balanced, dairy-like notes across various plant-based substrates, while avoiding the sharp acidic flavors often associated with the use of thermophilic cultures.

A LARGE RANGE OF APPLICATION

From fresh & ripened dairy alternatives to fermented ingredient innovations, through fermented vegetables, there is plenty of application for our **LALCULT® Specialty LL05**.

CARBOHYDRATE	LALCULT® SPECIALTY LL05
DEXTROSE	+
D-FRUCTOSE	+
SUCROSE	-
MALTOSE	+
STARCH	+



TECHNICAL DATAS

LALCULT® SPECIALTY LL05

STRAIN ORIGIN

LALCULT® Specialty LL05 is composed of a strain of *Lactococcus lactis* ssp *lactis*.

- *Lactococcus lactis* is a mesophilic, homofermentative, and anaerobic-tolerant culture
- *Lactococcus lactis* has a long-standing history of use in the food industry and is one of the most widely consumed food-grade bacteria worldwide
- *Lactococcus lactis* is naturally encountered in plants and vegetables

GROWTH PROFILE

- **Initial pH**

Optimal: pH 5,5 - 6,5

- **Temperature (mesophilic)**

Optimal: $\approx 30^{\circ}\text{C}$ - 37°C / Min: $\approx 12^{\circ}\text{C}$ / Max : $\approx 45^{\circ}\text{C}$

- **Salt (halotolerant)**

Optimal: 0 - 2% | Max: $\approx 4\%$ / Brine resistant

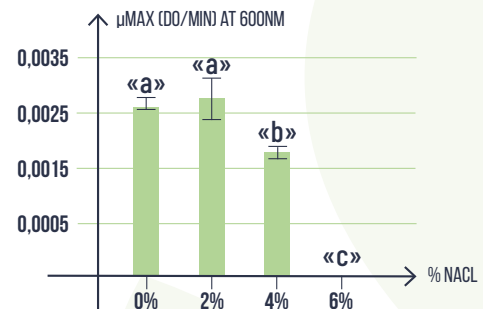
AROMATIC PROFILE

- Milder acidic taste compared to classical thermophilic cultures
- Slight dairy aromas

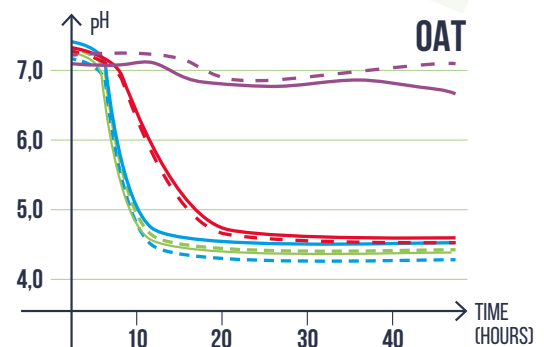
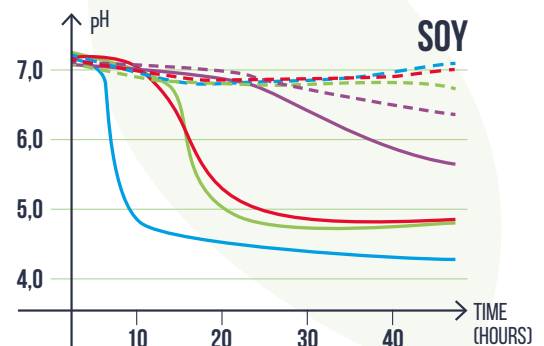
ACIDIFICATION PROFILE

- Depending on carbohydrate sources available
- Slower acidification compared to classical thermophilic cultures
- Available examples of acidification profile on soy and oat cream-cheese models

NaCl tolerance of LALCULT® Specialty LL05



Acidification profile depending on temperature and plant-based matrices



— 45°C — 37°C — 30°C — 22°C
- - 45°C + dextrose - - 37°C + dextrose - - 30°C + dextrose - - 22°C + dextrose

WHY CHOOSE LALCULT® SPECIALTY LL05?



Flavor & Clean Label Solution

Enhances dairy-like taste and aroma in plant-based products while supporting clean label expectations.



Innovation-Driven Fermentation

Designed for plant-based matrices, LALCULT® Specialty LL05 enables diverse product development from dairy alternatives to fermented vegetables and novel ingredients.