Wine bacteria
selected from nature

ML Prime™

***Lactiplantibacillus plantarum* (ex *Lactobacillus plantarum*)**

For co-inoculation in red vinification with pH ≥ 3.4

NEW CONCEPT WITH HIGH VITALITY

DESCRIPTION

ML PRIME™ is a wine bacteria strain selected by Università Cattolica del Sacro Cuore - Piacenza Campus in Italy, with interesting microbiological and oenological properties for high pH red wines.

Produced with a specific optimized Lallemand process, ML PRIME™ is a new concept of active freeze-dried *Lactiplantibacillus plantarum* with a very high malolactic activity, and no risk of volatile acidity (VA) production.

As soon as ML PRIME™ is added into the fermenting must, its high malolactic enzyme activity strongly shortens the lag phase and allows a quick degradation of malic acid up to 3 g/L.

Respecting its window of application, ML PRIME™ is perfectly suited to conduct malolactic fermentation (MLF) in the classical red winemaking process (short and medium maceration or vinification in the liquid phase). Addition of press wine with residual malic acid into the same tank previously inoculated with ML PRIME™ is not recommended.

BENEFITS & RESULTS

Easy-to-use in direct inoculation without any rehydration step, ML PRIME™ is the perfect tool for winemakers for red vinification with low natural acidity (pH ≥ 3.4) and total SO_2 content up to 5 g/hL.

ML PRIME™ is able to achieve a very fast MLF before the growth of indigenous bacteria, often responsible for the VA increase or other wine defects in high pH conditions.

Properly used in co-inoculation, ML PRIME™ guarantees:

- Very quick consumption of malic acid during alcoholic fermentation (AF) (between 3 and 10 days depending on grapes and musts matrix)
- No risk of production of volatile acidity due its facultative heterofermentative metabolism (does not produce acetic acid from glucose and fructose)
- Very early stabilization of wines after alcoholic fermentation because MLF is already achieved.
- No development of wine defaults because growth of indigenous spoilage micro- organisms is suppressed.
- Preservation of the wine quality.

PROPERTIES

- To be used only in co-inoculation in the fermenting mash/ must 24 hours after yeast addition
- pH: ≥ 3.4
- Malic acid content: ≤ 3 g/L
- Temperature range tolerance limitations: from 20 °C/68 °F to 26 °C/80 °F
- Total SO_2 tolerance max: 5 g/hL (total addition at crush before addition of ML PRIME™)
- Very short to no lag phase and ultra fast MLF kinetic
- No volatile acidity production: does not produce acetic acid from glucose and fructose (facultative hetero-fermentative strain)
- No production of biogenic amines
- Bacteria cinnamoyl esterase negative: cannot produce precursors for ethylphenol production by *Brettanomyces*
- Very low to no diacetyl production
- Good impact on the color intensity of wine
- Good resistance to BACTILESS™ (chitosan based products) applied on must

Being applied in co-inoculation, ML PRIME™ contributes to produce fresh red wines with good structure. Its ability to induce a slight increase of L-lactic acid production preserve the freshness of wine.

INSTRUCTIONS FOR OENOLOGICAL USE

Alcohol-tolerant malolactic strains for the maturation of wines with average or high pH.

ML PRIME™ behaves very different from *Oenococcus oeni*:

- it does not have the capacity to grow (multiply in wine)
- respect the right dose rate : 250 g per 25 hL or 1kg per 100 hL to assure a successful MLF.
- respect the window of applications according to its oenological properties described above.

EXCLUSIVELY IN CO-INOCULATION

1. Yeast addition

Rehydrate the selected dry yeast according to the instructions, preferably in presence of a rehydration nutrient, and inoculate the must.

2. Bacteria addition

SO_2 addition at crush up to 5 g/hL (< 50 ppm SO_2 added): wait for 24 hours after yeast addition before adding bacteria. Avoid SO_2 addition > 5 g/hL

Open the sachet of wine bacteria:

- either add it directly into the must at temperature between 20 °C/68 °F and 26 °C/80 °F.
- or for better distribution, quickly rehydrate the bacteria in a mix of must and drinking water (50/50) and add the suspension to the fermenting must.

Carefully monitor the temperature, between 20 °C/68 °F and 26 °C/80 °F during alcoholic and malolactic fermentation. Avoid a temperature below 20 °C/68 °F and > 26 °C/80 °F.

Apply a regular pump over (every day) in case of traditional vinification.

Monitor malic acid degradation every 2 days. The speed of degration of malic acid can be very fast after inoculation with ML PRIME™.

Remarks for other specific uses:

- In conditions of stuck of AF, ML PRIME™ can be used to degrade very quickly the residual malic acid without VA increase before applying the proper protocol of restarting stuck AF.
- ML PRIME™ can be used as a sequential inoculation into wines for a total degradation of malic acid, BUT ONLY after checking its efficiency to degrade malic acid with the lab pre-test protocol, specifically developed for this application (see the lab pre-test protocol for ML prime on wines use).
- ML PRIME™ can be used in white wine vinification (see the specific TDS for this application)

PACKAGING & STORAGE

- Product in powder form obtained by lyophilisation.
- Available for 25 hL (660 US gal.), for 100 hL (2,640 US gal.).
- Once opened, wine bacteria sachet must be used immediately.
- This product can be stored for 18 months at 4 °C/40 °F or 36 months at -18 °C/O °F in original sealed packaging.
- Sealed packets can be delivered and stored for 3 weeks at ambient temperature (< 25 °C/77 °F) without significant loss of viability.

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