SELECTED OENOLOGICAL BACTERIA

What if malolactic fermentation turned out to be the best way to bioprotect your wines?

Perdomini IOC

Révelons votre différence

PERDOMINI- IOC OENOLOGICAL BACTERIA: YOUR GO-TO TOOL FOR AVOIDING DEFECTS

For some time now, the reduction in the fruity bouquet of wine, further to malolactic fermentation, has been considered as normal. However, some recent studies have confirmed that this is not true. The lack of aromatic descriptors, which can be traced back to its fruity character, is the consequence of «aromatic masking» due to odorous molecules that are normally produced by indigenous microorganisms present in wine and which, on some occasions, reach a sensitive concentration level and even result as being a defect (above a certain threshold of perception). Nowadays, we are capable of overcoming this phenomena and contamination to the use of selected oenological bacteria, above all using them in co-inoculation.

HOW TO CHOOSE THE BEST OENOLOGICAL BACTERIA ON THE BASIS OF THE TYPE OF WINE AND WINEMAKING METHOD

INOFLORE

Prevents the development of indigenous microbial flora in co-inoculation (alcohol < 13.5% vol.)

The right tool to use for co-inoculation (at the beginning of AF)

Direct inoculation

Suitable for wine-making that requires medium to long maceration

MAXIFLORE SATINE

Co-inoculation and early inoculation in the most difficult situations

Very strong wines (alcohol, polyphenols, nutrients...)

Can be used at 2/3 of AF (early inoculation)

Suitable for wine-making that requires medium to long maceration

TYPE OF BACTERIA AND TIME OF INOCULATION: SOME SUGGESTIONS TO HELP YOU DECIDE

Early and important microbiological risks, high pH

→ Co-inoculation

→ INOFLORE / MAXIFLORE SATINE

Alcoholic fermentation at risk

→ Early inoculation

→ MAXIFLORE SATINE

Lack of heat control

→ Early inoculation or sequential inoculation (post AF)

→ MAXIFLORE SATINE

WHICH AROMATIC MASKS AND SENSORIAL FAULTS ARE OENOLOGICAL BACTERIA ABLE TO AVOID AND WHY?

OXIDATION: MLF, which is delayed in starting (after alcoholic fermentation), usually takes place in wine that has not been protected by SO_2; the risks connected with oxidation and with aromatic masks are considerable. The co-inoculation technique (inoculation at the beginning of alcoholic fermentation) enables problems like this being avoided.

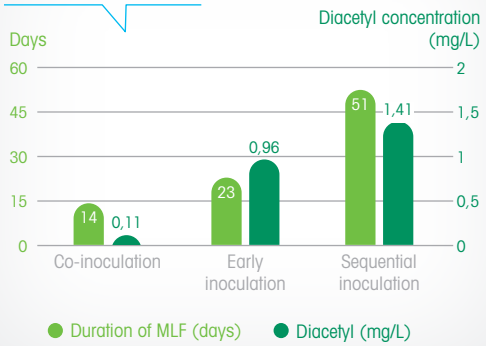
EXCESSIVELY BUTTERY NOTES: some spontaneous malolactic fermentation, especially when this happens quickly, leads to wine being produced with a high degree of diacetyl, which is responsible for the buttery notes and masking of aromatic and fruity freshness. This alteration can be easily avoided by practicing co-inoculation, which encourages the degradation of any diacetyl that has eventually been produced and/or choosing a type of bacteria that limit this production potential (Bartowski et al - AWRI, 2010).

MASKING « BIOGENIC AMINES »: they are generally produced by indigenous bacteria in a concentration such to be identified as a sensorial faults (like meat that has gone off, cheese, a «dirty» smell). The volatile biogenic amines (putrescine, cadaverine) usually occur in small amounts, but they can mask the fruity aromas (Palacios et al, 2005). The Perdomini- IOC oenological bacteria are incapable of producing biogenic amines (they are unable to decarboxylate amino acids). Co-inoculation, on the other hand, reduces the risks (Pillet et al, 2007).

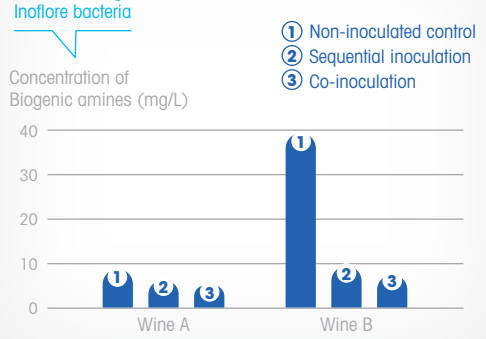
THE PHENOL FLAVOURS: The rapid start of MLF and the speed of fermentation are fundamental in establishing the wine from a microbiological position for MLF purposes, and to avoid any microbiological and organoleptic alterations. These factors help in limiting the development and proliferation of *Brettanomyces*, which are capable of producing volatile phenols, associated compounds with sensorial faults, such as, for example: horse sweat, stable odour, paint, mouse urine, ink … It has been proven, on many occasions, that co-inoculation is undoubtedly one of the best methods in limiting the risk concerning the development of *Brettanomyces* (Pillet et al, 2007). Furthermore, the Perdomini-IOC oenological bacteria are phenol-negative; this implies that they are unable to produce the volatile phenol precursors, contrary to other lactic bacteria..

BACTERIAL ALTERATIONS: The potential organoleptic faults from bacterial alterations are numerous: lactic and acetic bites, ropiness, mousiness … Malolactic fermentation management with selected oenological bacteria is undoubtedly a preventive method that will lead to these problems being avoided.

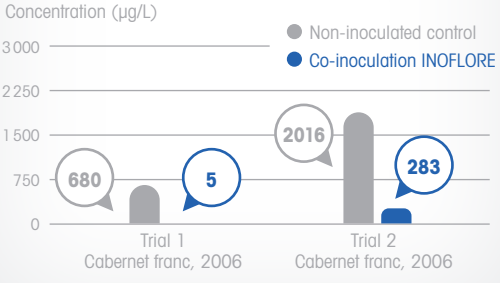
Duration of malolactic fermentation and production of diacetyl at the time of bacterial inoculation
Inoflore - Chardonnay 2010



Biogenic amine levels after MLF: comparison between different stages of inoculation
Inoflore bacteria



Protection against *Brettanomyces* through co-inoculation: volatile phenols after MLF
Ethyl-4-phenol + Ethyl-4-guaiacol (µg / L)



Sensorial alterations are no longer a fatality; malolactic fermentation is a fundamental step in producing wine, and a simple and essential instrument aimed at eliminating organoleptic faults.

MAKE MLF SAFER IN PRACTICE

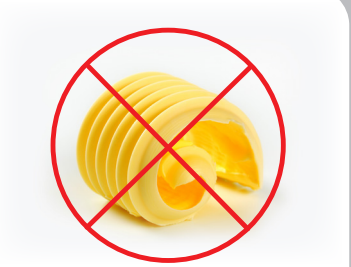
Over the last few years co-inoculation has been simplified, but some expedients, in any case, must be adopted:

- Avoid excessive grape sulphurisation (preferably <50 g/ton).
- Avoid co-inoculation in the case of low pH values (<3.3): the pH goes down at the start of alcoholic fermentation, compromising the survival of oenological bacteria. Delay the inoculation to 2/3 of the AF, the moment when the pH is highest.
- Manage the temperature: the optimum temperature for selected oenological bacteria is lower than 27°C. Wait for the temperature to go down prior to going ahead with the inoculation.
- Ensure alcoholic fermentation is performed successfully (protection and nutrition), especially in the case of potential, high alcohol.
- Avoid alcoholic fermentation:
  - spontaneous
  - with yeasts that produce high amounts of SO_2
  - with yeasts that have high nutritional requirements

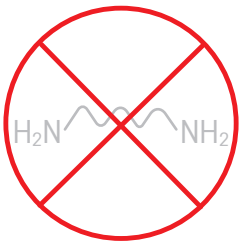
It is best to use yeast that is compatible with malolactic fermentation.

- With the Maxiflore kit, co-inoculation is performed without having to go ahead with acclimatisation: this phase takes place naturally in the fermentation must.

OUR OENOLOGICAL BACTERIA ARE SAFE



Handling buttery notes



Inability to produce biogenic amines

Inability to produce volatile phenols and their precursors

Our selected oenological bacteria, *Oenococcus Oeni*, are unable to increase the amount of volatile phenol precursors in wine, nor even to produce them directly.

Perdomini IOC
Révelons votre différence

Perdomini-IOC S.p.A.
37036 S. Martino B.A. (VR) Italy – Via Salvo D'Acquisto, 2
Tel. +39 045 8788611 r.a. – Fax +39 045 8780322 - 122
www.perdomini-ioc.com – info@perdomini-ioc.com