GAÏA™

LOW SO_2 SOLUTIONS

Natural protection for grapes during pre-fermentation

ORIGIN AND APPLICATION

From the harvest to the tank or press, the microorganisms responsible for acetic acid production (such as *Kloeckera apiculata*) may undergo unchecked multiplication. The risks become even greater when pre-fermenting maceration takes place, especially if temperatures are too high (>10°C – 50°F) or if the process takes a long time. The Institut Français de la Vigne et du Vin in France has selected ***Gaïa™***, a *Metschnikowia fructicola* yeast with no fermenting power to fight against this harmful micro flora. ***Gaïa™*** is a completely natural tool for limiting pre-fermentation sulfiting, whether used during cold soak or earlier (during harvesting). It also facilitates the subsequent implementation of selected and inoculated *S. cerevisiae* yeasts for fermentation.

MICROBIAL AND OENOLOGICAL PROPERTIES

- For red wine ○ ○ ●
- *Metschnikowia fructicola*
- Competitive factor: active K2
- Resistance to alcohol: very weak
- Resistance to SO_2: 50 mg/L of total SO_2
- Resistance to low pH: at least up to pH 3.0
- Optimum temperature for maceration: 8-16°C (46-60°F) (if pre-fermentation is cold, 8-12°C – 46-54°F).
- Fermenting power: very weak
- Implantation power: high.
- Multiplication power: high.
- Competition power: high.
- Does not produce unwanted metabolites (in particular volatile acidity).
- Requires sequential use of selected *Saccharomyces cerevisiae* yeasts for alcoholic fermentation.
- Viable yeasts: > 10 billion cells/g.

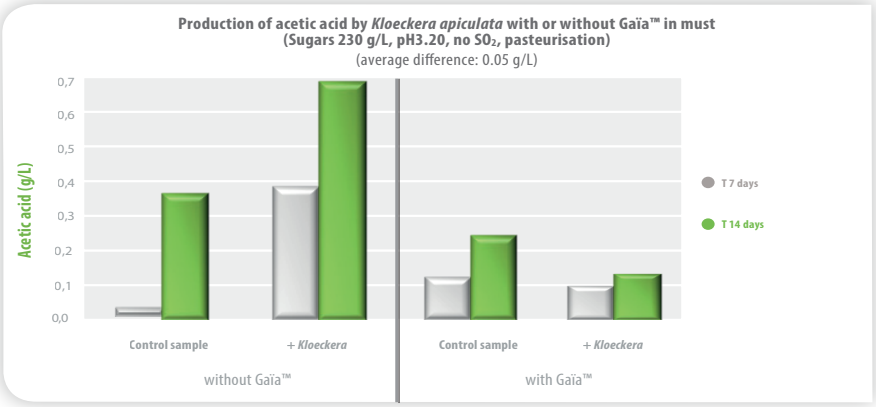
PRE-FERMENTATION STAGES: Controlling undesirable yeast

Kloeckera apiculata (or *Hanseniaspora uvarum*) is a microorganism capable of producing up to ten times more acetic acid than the *Saccharomyces cerevisiae* wine yeasts. This spoilage yeast is often the cause of acetic acid development during pre-fermentation maceration. The use of SO_2 effectively enables the limitation of its growth, however sometimes large doses are required to bring the risk down to an acceptable level. In the absence of SO_2, the situation is clearly more random. With ***Gaïa™***, the initial population of *Kloeckera* is contained and only grows slightly during the pre-fermentation phase. Consequently, acetic acid content remains very low in comparison to samples contaminated with *Kloeckera* but not protected by ***Gaïa™***.

NATURAL PROTECTION FOR THE SENSORY PURITY OF WINE

Gaïa™ was selected from other *Metschnikowia yeasts* as it also enables improvement of the sensory expression while preserving varietal character.

Gaïa™ is a powerful tool for reducing the use of SO_2 in your winemaking. It is a strategy and tool developed by the IOC for the control of oxidation and microbiological contamination, whether in pre-fermentation, fermentation or ageing.



INSTRUCTIONS FOR USE

Applications

- Freshly harvested grapes; addition into grape bins – provides protection to the grapes during transportation.
- Cold soak in tank – provides protection to grapes during this pre-fermentation stage.

Dosage rate

- 7 to 25g/hL (0.6 - 2lb/1000gal); to be adapted to the time of use and degree of risk of microbial contamination (use up to 25g/hL – 2lb/1000gal) when high microbial contamination is anticipated)

Rehydration

- Rehydrate ***Gaïa™*** in 10 times its weight in water at 20 to 30°C (68-86°F). Direct rehydration in the must is not recommended. It is essential to rehydrate the yeast in its own separate container.
- Stir gently to disperse any clumps and allow to stand for 15 minutes.
- If necessary, acclimatize the water to the temperature of the grape must by gradually adding must. The difference between the must for seeding and rehydration environment should not be more than 10°C (18°F).
- Rehydrated ***Gaïa™*** can be added immediately to the must/grapes (it can be kept up to 6 hours before addition to the grapes/must). Ensure good mixing (homogenization) of the Gaïa™ in the grapes/must to ensure good colonization over the whole volume.
- Leave with cold soak at 7-15°C (45-59°F) for at least 3 days before the addition of the yeast inoculum for alcoholic fermentation.
- Inoculate the grape must with *Saccharomyces cerevisiae*. It is recommended to rehydrate the yeast with a rehydration nutrient (such as GoFerm Protect Evolution™) and to use an appropriate nutrient regime for the alcoholic fermentation.

Further notes

- ***Gaïa™*** does not consume a lot of nitrogen, so there is no need to change the nutrition protocol for the *S. cerevisiae* yeast.
- Do not leave the rehydrated ***Gaïa™*** for longer than 6 hours.

PACKAGING AND STORAGE

This yeast should be stored dry, below 11°C (52°F) and the vacuum packaging should remain intact.

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