



GAÏA™




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) 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. **Gaïa™** can also be used to protect white juice during cold storage or transportation from unwanted fermentation.



MICROBIAL AND OENOLOGICAL PROPERTIES

- For white juice and red grapes 
- *Metschnikowia fructicola*
- Killer factor: active K2
- Resistance to alcohol: very weak
- Resistance to SO₂: 50 mg/L of total SO₂
- Resistance to low pH: at least down to pH 3.0
- Optimum temperature for maceration: 0 to 16°C (if cold soak, 4 to 12°C).
- 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 SO₂ 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 SO₂, 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™**.

LIMITING RISKS OF TRIGGERING UNWANTED FERMENTATION

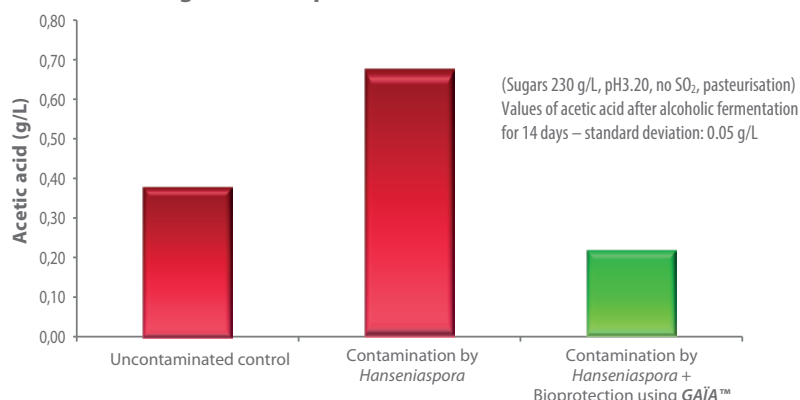
Gaïa™ achieves its biocontrol by preventing the development of indigenous *Saccharomyces cerevisiae* yeasts during pre-fermenting phases and delays the triggering of the fermentation process. The efficiency of such a slow-down delay depends on must temperature. After inoculation with selected *Saccharomyces* yeasts (at sufficient population to trigger fermentation), and as the alcohol increases, the **Gaïa™** population dies off.

NATURAL PROTECTION FOR THE SENSORY PURITY OF WINE

Gaïa™ is also active against acetic acid bacteria (*Acetobacter*, *Gluconobacter*) and *Botrytis cinerea*. The earlier **Gaïa™** is inoculated, the more effective it is in limiting the growth of different microorganisms.

Gaïa™ is a powerful tool for reducing the use of SO₂ 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.

Production of acetic acid by *Hanseniaspora uvarum* regard to the presence of GAÏA™ in the must



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.
- White juice storage or transportation - provides protection to the juice

Dosage rate

- Red grapes; 7 to 20 g/hL; to be adapted to the time of use and degree of risk of microbial contamination (use up to 20 g/hL when high microbial contamination is anticipated)
- White juice storage or transportation; 10 g/hL (20 g/hL if high microbial pressure is observed). Add during the filling of the storage vessel. Do not heat the juice before inoculation and maintain cold temperature.

Rehydration

- Rehydrate **Gaïa™** in 10 times its weight in water at 20 to 30°C. 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.
- 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 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®/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

- 500 g vacuum packed aluminium polyethylene sachet.
- Store in a cold (4°C) dry place. Once open the product should be used quickly.

The information herein is true and accurate to the best of our knowledge; however, this data sheet is not to be considered as a guarantee, expressed or implied, or as a condition of sale of this product.