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 SO2: 50 mg/L of total SO2
- 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 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 SO3, 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 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.

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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