

ENARTIS NEWS

UTILIZING TANNINS AND POLYSACCHARIDES TO POLISH AND FINISH WINES BEFORE BOTTLING

A wine which has oxidized, reduced, herbaceous, bitter, astringent or burning qualities is generally considered unappealing. For years, fining agents, acidifying or de-acidifying agents have been used to rectify these problems, however these tools

How can finishing tannins and polysaccharides improve wines before bottling?

The first step to produce a good wine is to have good quality mature grapes. But if nature has not assisted us, during ageing or when it is time to prepare the wine for bottling, we may become aware of some imperfections that need to be fixed. Normally in these situations the enologist resorts to the use of fining agents and/or correcting acidity. Obviously, these practices are effective, but they nearly always involve a loss of quality (table 1).

What are the advantages of Enartis finishing tannins and polysaccharides?

One of the major benefits of utilizing enological tannins and polysaccharides is the ability to fine-tune a wine during and after aging. This allows the winemaker the flexibility of waiting to see how tannins resolve over the aging process.

can also negatively impact structure, volume, color and aroma of the treated wine. Tannins and polysaccharides are more recent tools which can be used improve balance, all while respecting the wine.

In some situations, however, it is possible to use alternative tools which do not affect the quality of the wine: tannins and polysaccharides. After aging a wine, it may be lacking in tannin, mid palate, flavors, aromas, or general complexity. The addition of enological tannins can drastically improve these wine parameters, as well as eliminate reductive qualities and green notes. Conversely, a wine which may be too astringent or bitter can be tempered and improved with the addition of some specific tannins, yeast-derived polysaccharides or gum Arabic.

With fining, often the product requires time for settling, with a subsequent racking afterwards. This process takes time and can waste wine, while many Enartis tannins and polysaccharides can be added just days prior to bottling with no racking and subsequent wine losses.

Table 1: Use of Traditional Tools to Fix Wine Imperfections

| Imperfection | Tools | Unwanted side effects |
|----------------|-----------------------|--|
| BITTERNESS | ISINGLASS | Loss of aroma intensity |
| | PVPP | Loss of volume/structure |
| | CASEIN | Loss of aroma intensity Loss of color |
| ASTRINGENCY | GELATIN | Loss of aroma intensity |
| | EGG ALBUMIN | Loss of aroma intensity |
| LACKS ACIDITY | TARTARIC ACID | Tartrate instability Taste imperfections |
| EXCESS ACIDITY | POTASSIUM BICARBONATE | Bad after taste with high dosage |
| HERBACEOUS | ISINGLASS | Loss of aroma intensity |
| | FISH GELATIN | Loss of aroma intensity Loss of structure |
| REDUCTION | COPPER SULFATE | Loss of aroma intensity |
| OXIDATION | PVPP | Loss of volume/structure |
| | CASEIN | Loss of aroma intensity Loss of color |
| | BENTONITE | Loss of aroma intensity Loss of structure/volume Loss of color |
| | ISINGLASS | Loss of aroma intensity |

ENARTIS TANNINS

Tannins can come from many different sources, but generally they will be either wood (oak) or grape derived. The following tables outline the attributes of both types offered by Enartis:

GRAPE DERIVED TANNINS

Enartis grape tannins (table 2) come from white grape skins and/or seeds. These are condensed tannins used to balance mid-palate, build structure, improve wine length and enhance aromas.

Table 2: Enartis Grape Tannins

| | Increase aromatic cleanliness | Structure | Astringency | Softness | Aroma | Aroma contribution |
|--------------|-------------------------------|-----------|-------------|----------|-------|-----------------------------------|
| Elegance | ◆◆◆ | ◆◆ | ◆ | ◆◆◆◆ | ◆◆◆ | Stonefruit, white flower |
| Fresh Fruit | ◆◆ | ◆◆ | ◆ | ◆◆◆◆ | ◆◆◆◆ | Lemon, citrus, mint, fresh fruit |
| Fruitan | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ | Red fruit, spices |
| Total Fruity | ◆◆ | ◆◆ | ◆ | ◆◆◆◆ | ◆◆◆◆ | Strawberry, plum, cherry, berries |
| Skin | ◆◆ | ◆◆ | ◆◆ | ◆◆ | ◆◆◆◆ | Grape, tea, fruit |
| Uva | ◆◆ | ◆◆◆ | ◆◆◆◆ | ◆◆ | ◆◆◆◆◆ | White fruit |
| Uvaspeed | ◆ | ◆◆ | ◆ | ◆◆◆◆◆ | ◆◆◆◆ | Grape, honey |

OAK DERIVED TANNIN

Enartis oak tannins (table 3) are produced from the same oak wood used for oak barrels. After seasoning

and toasting, tannins are extracted, concentrated and spray-dried to maintain the aromatic and sensory properties of oak.

Table 3: Enartis Oak Tannins

| | Increase aromatic cleanliness | Structure | Astringency | Softness | Aroma | Aroma contribution |
|----------------|-------------------------------|-----------|-------------|----------|-------|----------------------------------|
| Cœur de Chêne | ◆◆ | ◆◆ | ◆◆ | ◆◆◆ | ◆◆◆◆ | Vanilla, caramel, spices |
| Dark Chocolate | ◆◆ | ◆◆◆ | ◆ | ◆◆◆◆ | ◆◆◆◆◆ | Cocoa, toasted hazelnut, vanilla |
| Elevage | ◆◆◆ | ◆◆◆ | ◆◆◆ | ◆◆ | ◆◆◆ | Caramel, licorice, vanilla |
| Extra | ◆◆ | ◆◆ | ◆ | ◆◆◆◆ | ◆◆◆◆◆ | Vanilla, caramel, cocoa, coffee |
| Napa | ◆◆ | ◆◆◆ | ◆ | ◆◆◆◆ | ◆◆◆◆◆ | Coconut, caramel, coffee, cocoa |
| Rich | ◆◆◆ | ◆◆ | ◆◆ | ◆ | ◆◆ | Toasted wood, coffee, spices |
| SLI | ◆◆◆◆ | ◆◆ | ◆ | ◆◆◆◆ | ◆◆◆◆ | Wood, coconut, vanilla |
| Superoak | ◆◆◆ | ◆◆ | ◆ | ◆◆ | ◆◆ | Vanilla, caramel, hay |
| Toffee | ◆◆◆ | ◆◆◆◆ | ◆◆ | ◆◆◆ | ◆◆◆◆ | Coffee, caramel, toasted |
| Vanilla | ◆◆◆ | ◆◆◆◆ | ◆◆ | ◆◆◆ | ◆◆◆◆ | Vanilla, coconut, cream |

UNICO LINE

Unico tannins (table 4) are a unique line of tannins that were developed solely by Enartis. The unique production process makes it possible to obtain tannins with enhanced characteristics beyond those

of typical enological tannins: intense and distinct aromas, high content of tannin and high content of polysaccharides making them softer and sweeter on the palate.

Table 4: Enartis Unico Line

| | Increase aromatic cleanliness | Structure | Astringency | Softness | Aroma | Aroma contribution |
|----------|-------------------------------|-----------|-------------|----------|--------|--------------------------------------|
| Unico #1 | ◆◆ | ◆◆◆◆ | ◆ | ◆◆◆◆ | ◆◆◆◆◆◆ | Vanilla, cocoa, toasted wood, spices |
| Unico #2 | ◆◆ | ◆◆◆◆ | ◆ | ◆◆◆◆ | ◆◆◆◆◆◆ | Red fruit, wild berries, cherry |
| Unico #3 | ◆◆◆◆◆ | ◆◆ | ◆ | ◆◆◆◆ | ◆◆◆◆◆◆ | Flower, lemon, mint |

ENARTIS POLYSACCHARIDES

YEAST MANNOPROTEINS

The Enartis Surli range (table 5) supplies yeast mannoproteins and natural antioxidants to increase the volume and roundness of wine. Surli range products are used to balance mouthfeel, extend shelf life, and improve stability and sensory qualities.

GUM ARABIC

depending the origin and hydrolysis level of the gum Arabic, the organoleptic impact on wine will vary. Arabic gum is used to improve the volume, viscosity and weight of wine, balance astringency and increase aromatic persistence.

Table 5: Enartis Surli and Gum Arabic Range

| | Aroma enhancement | Structure | Softness | Volume/sweetness |
|-------------------|-------------------|-----------|----------|---------------------|
| Aromagum | ◆◆◆ | ◆ | ◆◆◆◆ | ◆◆◆ |
| Citrogum | ◆◆ | ◆ | ◆◆◆◆ | ◆◆◆ |
| Citrogum Plus | ◆ | ◆ | ◆ | ◆◆◆◆ (sweetness) |
| Maxigum | ◆ | ◆ | ◆◆◆◆ | ◆◆◆◆ |
| Surli Elevage | ◆ | ◆◆ | ◆◆◆◆ | ◆◆◆◆ |
| Surli Velvet | ◆ | ◆◆ | ◆◆◆◆ | ◆◆◆◆ |
| Surli Velvet Plus | ◆◆ | ◆◆ | ◆◆◆ | ◆◆◆◆ |
| Surli Vitis | ◆◆ | ◆◆◆ | ◆◆◆ | ◆◆◆ |

HOW TO CONDUCT PRELIMINARY TANNIN AND POLYSACCHARIDE TRIALS:

Bench trials are essential to determine proper dosing and efficiency of a treatment (addition of fining agents, tannins or polysaccharides). To set up bench trials, follow these steps:

- Prepare a 1% (1 g in 100 mL) solution of the product to be tested. For tannins and polysaccharides, use neutral alcohol-water solution (~ 13%v/v). For liquid products, use solution as is.
- Label each sample. Include one untreated sample as a control.
- Fill samples with wine up to 80% of final volume, leaving space for the addition.
- Add the treatment solution. Refer to Table 6 below for the volume of a 1% solution to add to wine.
- Tasting can be done immediately after addition.

Table 5: Enartis Surli and Gum Arabic Range

| Wine sample volume \ Addition rate | 30 mL | 50 mL | 100 mL | 125 mL | 375 mL | 750 mL |
|------------------------------------|-------|-------|--------|--------|--------|--------|
| 5 g/hL | 0.15 | 0.25 | 0.50 | 0.62 | 1.87 | 3.75 |
| 7 g/hL | 0.21 | 0.35 | 0.70 | 0.87 | 0.62 | 5.25 |
| 10 g/hL | 0.30 | 0.50 | 1.00 | 1.25 | 3.75 | 7.50 |
| 15 g/hL | 0.45 | 0.75 | 1.50 | 1.87 | 5.62 | 11.25 |
| 20 g/hL | 0.60 | 1.00 | 2.00 | 2.50 | 7.50 | 15.00 |
| 25 g/hL | 0.75 | 1.25 | 2.50 | 3.12 | 9.37 | 18.75 |

WITH SO MANY OPTIONS, WHICH TANNIN AND/OR POLYSACCHARIDE SHOULD I TRY?

The table below lists a few examples of how finishing tannins and polysaccharides can help winemakers modify or improve a wine just before bottling:

| Finishing Objective | Product Recommendation |
|------------------------------|---|
| Increase fruitiness | Unico #2, Fruitan, Tan Total Fruity, Tan Fresh Fruit |
| Increase oak aromas | Unico #1, Tan Napa, Tan Coeur de Chene, Tan Dark Chocolate, Tan Toffee, Tan Vanilla |
| Increase acidity/freshness | Unico #3, Tan Fresh Fruit |
| Increase soft tannin | Tan Uvaspeed, Tan Elegance, Tan Max Nature, Surli Vitis |
| Increase perceived sweetness | Tan Extra, Tan Toffee, Unico #1, Tan Superoak, Tan Vanilla, Citro gum Plus |
| Increase mid palate | Surli Velvet, Surli Velvet Plus, Tan Skin, Tan Uvaspeed, Tan Dark Chocolate |
| Increase structure | Tan Fruitan, Tan Coeur de Chene, Tan Skin, Tan Rich, Tan Napa |
| Decrease bitterness | Tan Uvaspeed, Unico #1, Citro gum, Aromagum, Surli Vitis |
| Decrease burning sensation | Surli Velvet, Tan SLI, Tan Uvaspeed |
| Decrease astringency | Surli Velvet, Surli Velvet Plus, Citro gum, Aromagum |
| Decrease reduced notes | Tan SLI, Tan Elevage, Tan Max Nature |
| Decrease green notes | Tan Max Nature, Unico #1 |