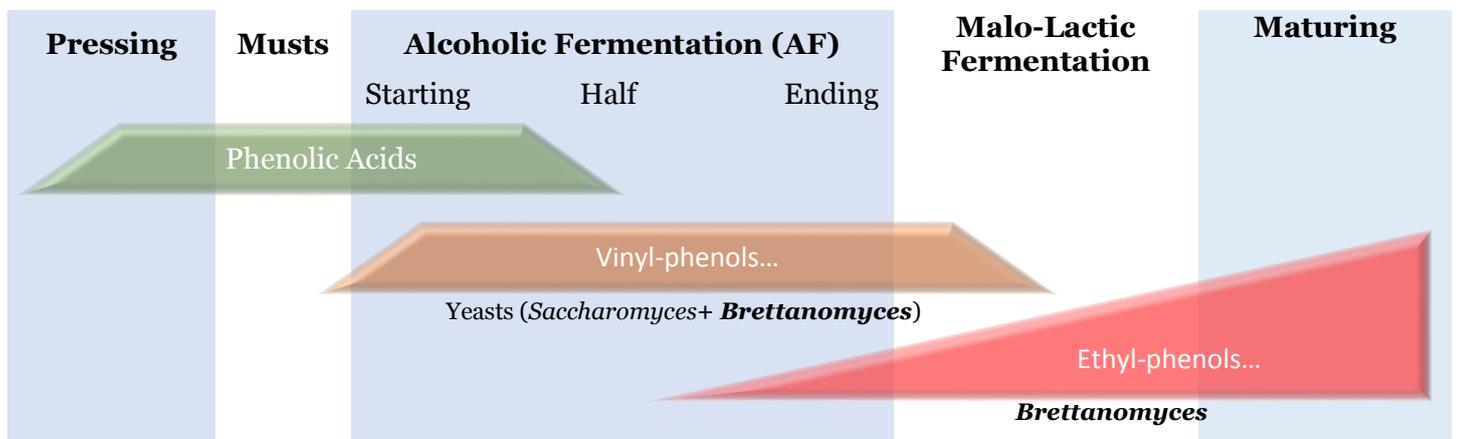


## Brettanomyces detection kit



*Brettanomyces* has become one of the main subjects in the field of microbial wine, cider and beer spoilage. It can be present on fruits, cellar equipment and barrels and can flourish during fermentation process, wine maturing and bottling.

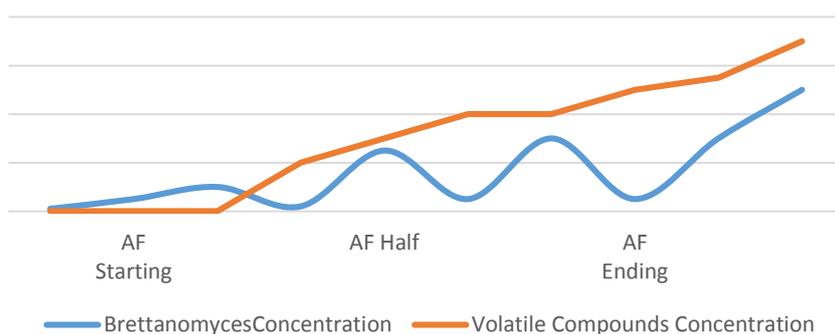
*Brettanomyces* get used to fermentation condition. It can survive and grow up in poor acidic and alcoholic medium. It has been shown to be the main organism responsible for the formation of volatile phenols that are described as “Brett” taint when perceived in red wine. These off-flavors appear with the phenolic acids transformation in vinyl-phenol, vinyl gaiacol and vinyl- catechol and further in ethyl-phenol, ethyl-gaiacol and ethyl-cathecol.



Early detection of *Brettanomyces* is important to prevent their proliferation and the synthesis of volatile phenols that can not be eliminated.

Volatile phenol never appear without *Brettanomyces*,  
But *Brettanomyces* can be present without sensorial detection of volatile phenols  
To limit volatile phenols production,  
It is necessary to limit *Brettanomyces* proliferation and activity.

Model of volatile phenols evolution compare to *Brettanomyces* concentration



Even if the *Brettanomyces* population evolved during fermentation process, **vinyl and ethyl phenols** accumulate and **cannot be eliminated**.

So a late microbiologic control may result in **contaminating yeast absence** with **volatile phenols presence**.

Only a scheduled follow-up allows a global overview of the fermentation process evolution.

# Bretta Test

## Bretta Test specific immunofluorescence detection method for *Brettanomyces*.

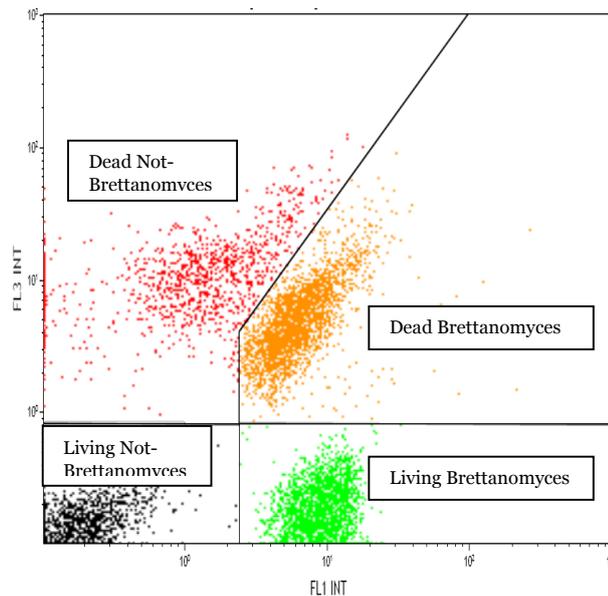
Until now, no totally reliable rapid and specific method was available to answer to both question of identification and viability of *Brettanomyces*. We have developed a specific detection method for these yeasts by immunocytometry.

It is based on an antibody produced from *Brettanomyces* of various geographic origins, developed by Amarok Biotechnologies and associated to a viability marker.

It is now possible to detect *Brettanomyces* and not-*Brettanomyces* yeast and assess their viability in the same time.

Bretta Test brings yeast status in a sample in less than 2 hours.

Associated to flow cytometry you can visualize results as presented on the graph.



Living yeasts = viable + viable non-culturable

## Comparison with classical methods

### ➤ Colony plate counting

Historical method using specific culture media. Culture needs 5 to 7 days before validated results. Viable-not culturable yeasts are not counted.

- **Bretta Test identifies viable and viable-not culturable yeasts in less than 2 hours.**

### ➤ Microscopy

It is possible to identify *Brettanomyces* by microscopy but this method is user dependent and only few cells can be counted and identified.

- **Bretta Test associated to flow cytometry helps to count thousands cells in few seconds and identify small populations.**
- **Associated to microscopy, Bretta test bring detection specificity.**

### ➤ PCR

Genetic methods are the more specific. The laboratories must be in a step forward organization (extraction and amplification are not realized in the same location). Most of these methods do not distinguish living from dead cells. At least molecular methods are the most expensive.

- **Bretta Test is a specific method, affordable, that allow to detect viable and viable non culturable *Brettanomyces*.**

### ➤ Flow cytometry viability tests

Analytical methods using only physiological dyes, are helpful to monitor a process, but the absence of specificity is an important lack for their usefulness.

- **Bretta Test brings viability and specificity.**

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