EFFECTS OF CO-FERMENTATION IN CABERNET SAUVIGNON & PETITE SIRAH

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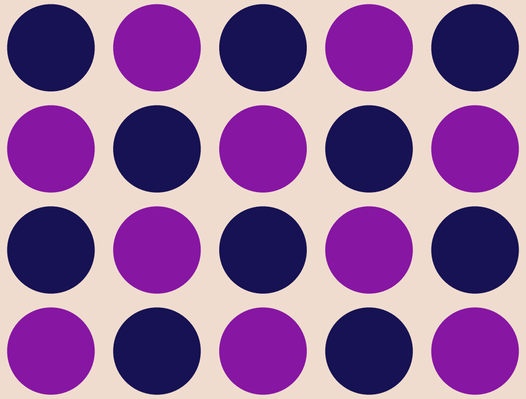
1) INTRODUCTION

COFERMENTATION

It involves fermenting 2 or more different grape varietals together in the same vessel

More complexity
and uniquenesss



Notable impact on
flavor & structure

This study was conducted to see the long term analytical and organoleptically impact, if any, of co-fermentation on polyphenols and tannic quality and general balance on red wines in our region.

2) METHODOLOGY

COMPARATIVE

This comparative study was done in 3 different wines fermented in 3 separate tanks following the same technical itinerary (fermentation and ageing). Analysis presented are taken on finished wines 6 months after being bottled

Modality 1	Modality 2	Modality 3
100% Cabernet Sauvignon Bruma winery, Valle de Guadalupe, Planted in march 2016. It is Clone 169 over 1103 Paulsen.	100% Petite Sirah Bruma winery, Valle de Guadalupe, Planted in march 2016. It is Clone 2 (California selection) over 1103 Paulsen.	70% Cabernet Sauvignon + 30% Petite Sirah. Same plots.

The 3 modalities were hand harvested the same day under the same conditions, as well as processed the same day.

2) METHODOLOGY

VINIFICATION PROTOCOL (1/2)

1) SORTING & DESTEEMMED

Manual sorting

Desteemmed but not crushed

2) ADDITION DURING HARVEST PUMP

- Bionature: 40 g/ton.
- MetaBisulfite: 15 g/ton.
- Crush Red: 25 ml/ton added in the tank during filling.
- Protanin R: 20 g/hL when the tank is half full.

3) COLD SOAK

- Temperature: 5°C (41°F) for 5 days.
- Pump Overs:
  - Closed pump over: 5 minutes, morning and night.
- Nitrogen Addition: 2 times per day.

4) POST COLD SOAK

- Increase Tank Temperature: To 23°C (73.4°F) on the 5th day.
- Pump Overs:
  - Closed pump over: 5 minutes, morning and night.
- Nitrogen Addition: 2 times per day.

5) FERMENTATION

- Yeast Addition (XR): 20 g/hL.
  - Hydration: With 25 g/hL OenoStim (polysaccharides, amino acids, vitamins, minerals, sterols, polypeptides).
  - Incorporation: Introduced into the tank using a closed pump over.

DAY 1: Two open pump overs (AM/PM).

DAY 2 (AM) : Add 1 g/hL Oeno1 during an open pump over.

DAY 2 (PM) : Open pump over.over.

DAY 3 : Two closed pump overs and one open pump over daily.

2) METHODOLOGY

VINIFICATION PROTOCOL (2/2)

6) DENSITY MONITORING

Until 1000 density, perform:

3 daily closed pump overs.

7) ADDITION DURING FERMENTATION

At 1/3 of Fermentation:

- OptiFerm: 20 g/hL.
- AromaProtect: 20 g/hL.

8) PRESSING AND SULFITE ADDITION

- After fermentation, press the wine.
- Add sulfites to achieve 25 mg/L.

9) BARRIL AGING

- Barrels: 500L new French oak.
- Aging Duration: 18 months.
- Racking Schedule:
  - Every 3 months during the first year.
  - Every 4 months during the second year

3) RESULTS

ANALITICAL

- The 3 tanks finished fermentation the same day (+/- 1 day), the fermentation kinetics where almost identical with no significant differences.

- The analytical and organoleptic results presented are issued from the wines 6 months after being bottled.

Varietal	Vintage	Titratable Acidity (g/L tartaric acid)	pH	Malic Acid (g/L)	Lactic Acid (g/L)	Tartaric Acid (g/L)	Volatile Acids (g/L [A])	Total Sugars (g/L)	Ethanol (%vol)	Glicerol [g/L]	Free Sulfites (mg/L)	Total Sulfites (mg/L)	Total Polyphenols (g/L)	Anthocyanins (mg/L)	Color (ABS)	IPT	Dissolved Oxygen (mg/L)	DO280	DO420	DO520
(PS) PETITE SIRAH	2021	4.57	3.68	0	2.27	1.52	0.77	1.2	14.69	7.1	32	133	1.34	136	1.93	32	3.44	0.885	1.207	0.978
(CS) CABERNET SAUVIGNON	2021	5.91	3.73	0	4.61	2.28	0.67	1.7	13.71	6.7	36	127	1.67	107	1.752	30	3.34	0.852	0.952	0.878
PS + CS	2021	5.62	3.72	0	4.06	2.06	0.65	1.5	13.91	8.3	46	129	1.78	157	2.598	37	2.99	0.984	0.874	1.391

3) RESULTS

TASTING

Methodology: Blind tasting of three modalities

Participants: Bruma production team (4 trained tasters).

Aspect	Co-Fermentation (Modality 3)	Other Modalities
Texture	More velvety and integrated tannins	Less integrated tannins
Fruit Expression	More pronounced fruit presence	Less pronounced fruit presence
Color	Deeper color	Lighter color
Overall Preference	**Unanimous preference**	Not preferred

4) DISCUSSION

ANALITICAL

Aspect	Key Observations
Glycerol Levels	15-20% higher in co-fermentation. Enhanced yeast activity due to grape variety interactions.
Free Sulfites and Dissolved Oxygen	Higher free sulfites and lower dissolved oxygen levels. Linked to polyphenol content reducing oxygen.
Polyphenol Compounds	Higher levels across all polyphenols, with IPT 14-19%, Total Polyphenols 9-25%, and Color ABS 25-35% higher.
Color and Polyphenol Dynamics	Color intensity higher due to anthocyanin interaction. Better color stability over time.
Tannin Integration and Longevity	Increased tannin concentration and polymerization due to varietal synergy. Better integration and longevity.
Tasting Observations	Smoother tannins, better balance, enhanced fruitiness, freshness, and complex aromas.
Ageing Potential	Higher polyphenols, free sulfites, and lower oxygen suggest improved aging potential and complexity.

4) DISCUSSION

Conclusion

TASTING KEY POINTS

Smoother Tannins:

The wine from co-fermentation had softer, smoother tannins.

Better Balance and Freshness:

It tasted more balanced, with a fresh and fruity character.

More Complex Flavors:

Mixing different grape varieties during fermentation created new, more interesting flavor profiles.

Richer Aromas:

The wine smelled fruitier and more complex, thanks to the interaction of grape aromas.

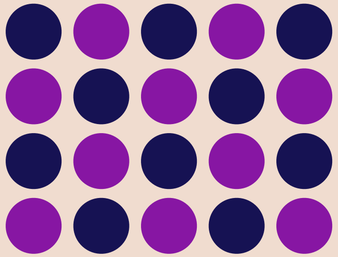
Great Aging Potential:

Higher polyphenols, more sulfites, and less oxygen in the wine suggest it will age better and become even more complex over time.

4) DISCUSSION

CONCLUSION

Co-fermentation brings many benefits to red wine production. It improves color stability, flavor complexity, and tannin balance, resulting in wines that are elegant, robust, and unique. It also enhances aging potential by harmonizing polyphenols, improving sulfite efficiency, and reducing dissolved oxygen.



Challenges

However, it comes with challenges. The lack of complete understanding of varietal interactions and their impact on terroir makes it hard to select the right grape combinations. The complexity of fermentation and aging factors also makes it difficult to determine what outcomes are due to co-fermentation versus other external influences.

Valuable

Despite these challenges, co-fermentation is a valuable tool for creating new flavors, textures, and aromas while respecting the character of our grapes and terroirs in a non-invasive, low-intervention way.

OCHO MEZCLA

WINERY
Bruma Vinícola

ORIGIN AND REGION
Rancho Bruma
Valle de Guadalupe

GRAPES
70% Cabernet Sauvignon, 30% Petite Sirah

AGING
16 months in 50% new French oak barrel.

WINE AGING
5 - 15 years

SERVING TEMPERATURE
16 - 18 C°

Intense purple color with ruby edges.
Very expressive and complex nose with notes of blue blackberry, black pepper, dried blueberries, fresh rose, and violet.

The second nose reveals notes of dried flowers, licorice, vanilla pod, dark chocolate, black cherry, cardamom, menthol, truffle, and graphite.
Firm yet elegant attack, velvety and polished tannins.
Medium dense and broad palate.
Balanced tannic structure and freshness on the finish.
An imposing wine with an iron fist in a velvet glove.

THANK YOU

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