

## IMPACT OF CLIMATIC CONDITIONS ON THE GROWTH AND POPULATION DYNAMICS OF FLOR YEAST IN BIOLOGICALLY AGED SHERRY WINES

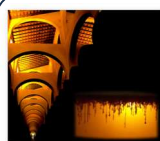
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### INTRODUCTION & AIM



The biological ageing process of Fino wines spans extended periods of time, a minimum of two years, as established in the Specifications Document of the D.O. Jerez-Xérès-Sherry,

The thermo-hygrometric conditions of the cellar housing these solera systems are both variable and seasonal, being influenced by external meteorological factors, which significantly determine the development, consistency, and persistence of the biofilm (*Flor*).

The present study is based on the zoning and thermo-hygrometric monitoring of one of the most distinctive cathedral-style wineries in the Jerez region — La Mezquita Winery (Bodegas Fundador S.L.U.) — with the aim of determining the influence of environmental parameters on the development and population distribution of the *Flor* yeast layer across three soleras located in different areas within the same facility.

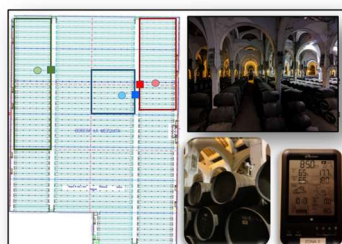
### METHOD

Outside cellar Meteorological Station (AG Zoom)



Indoor cellar

- Station – Zone 1
- Station – Zone 2
- Station – Zone 3 (Bresser)



Inside casks

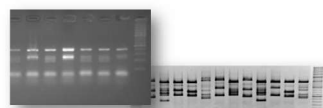
- Headspace
- Liquid

(Hanna Checktemp 1 Thermometer)

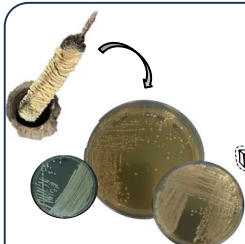


Molecular characterization

- ITS (Kurtzman, 2014)
- SSR (Vaudano and García-Moruno, 2008)



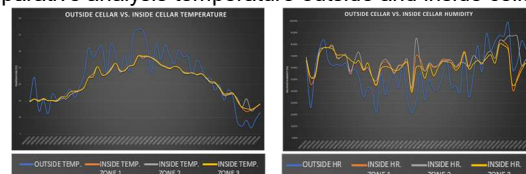
Monthly sampling (*Flor*)



### RESULTS & DISCUSSION

#### Thermo-hygrometric Control

1- Comparative analysis temperature outside and inside cellar



2- Comparative analysis temperature by cellar zone (ambient, headspace cask and inside liquid)

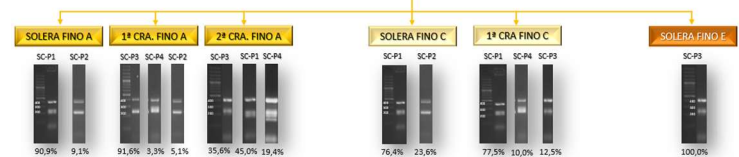


#### Microbiological Control

Yeast isolation (925 ud.)



PCR (ITS/SSR)



#### Population Distribution



### CONCLUSIONS

1. The outside cellar thermo-hygrometric oscillations are significantly dampened within the indoor cellar.
2. Temperatures above 25 °C inhibit the development of *Flor* yeast in nearly all the solera systems
3. Four different genotypes of *Flor* yeast have been identified. SC-P1→detected in four of the six solera systems, it is the most resistant to extreme temperatures.
4. The soleras exhibit greater biotypic homogeneity than the criaderas.
5. No genotypic selectivity associated with wine type was observed

### FUTURE WORK / REFERENCES

- Ibeas, J.I. (1997) Effects of ethanol and temperature on the biological aging of sherry wines. *Am. J. Enol. Viticult.* 48
- Cañas, I. (2022) Hygrothermal conditions for the biological aging of sherry wine. *Inn. Food Sc. & Em. Tech.*, 82