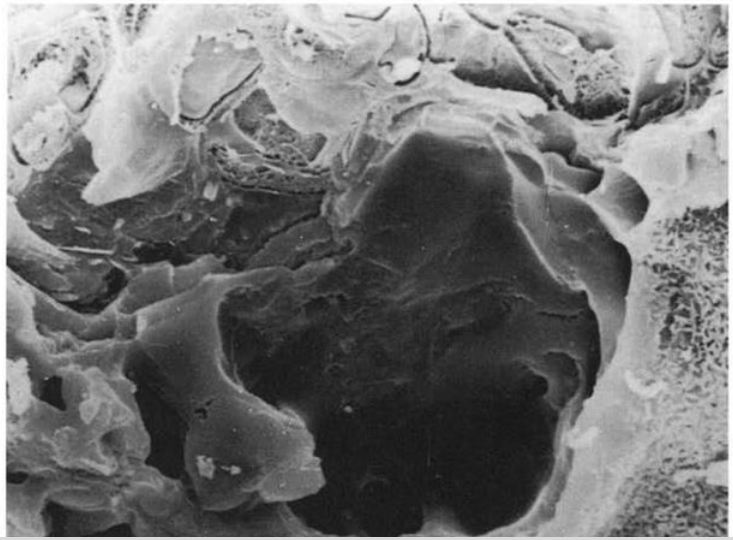
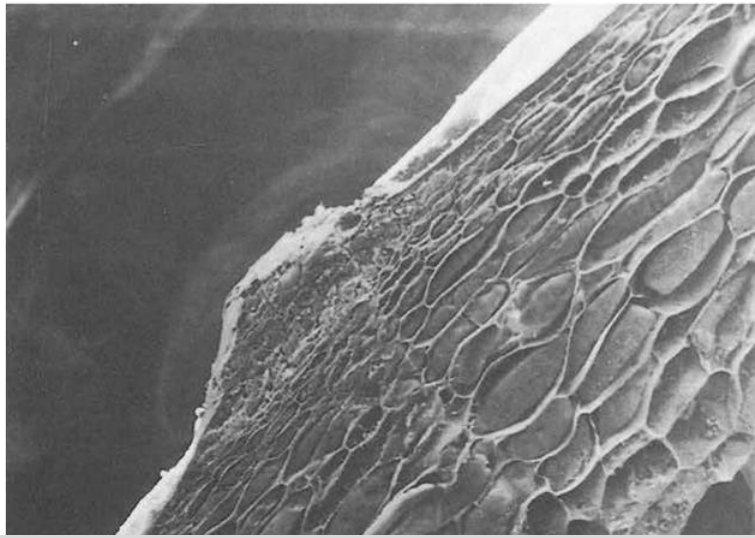
SOGRAPE ORIGINAL LEGACY WINES

"Hidden power: how microbes drive sustainability into the wine business"





Natacha Fontes, *PhD*

Sogrape Vinhos, S.A.

Natacha.Fontes@Sogrape.pt

20 June 2018

SOGRAPE

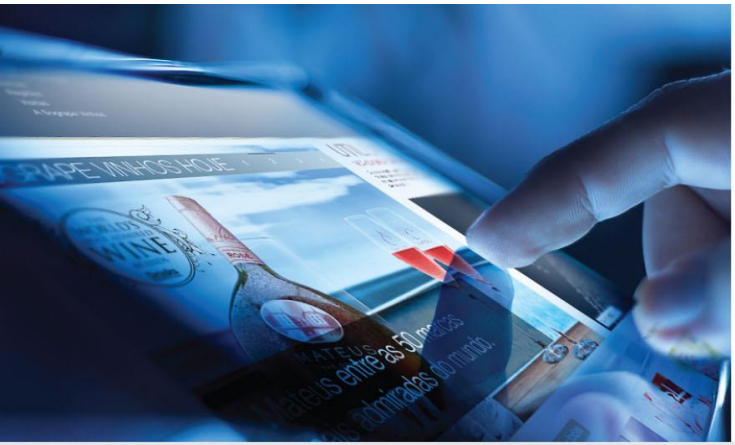
ORIGINAL LEGACY WINES

SOGRAPE VINHOS

Natacha Fontes, PhD
R&D Department

SOGRAPE ORIGINAL LEGACY WINES

Creating the best wines for over 75 years



FAMILY COMPANY

3 generations of leadership
Value led
Professional Management

STRONG INTERNATIONAL PRESENCE

5 countries of origin
28 brands
6 distribution operations
120 markets

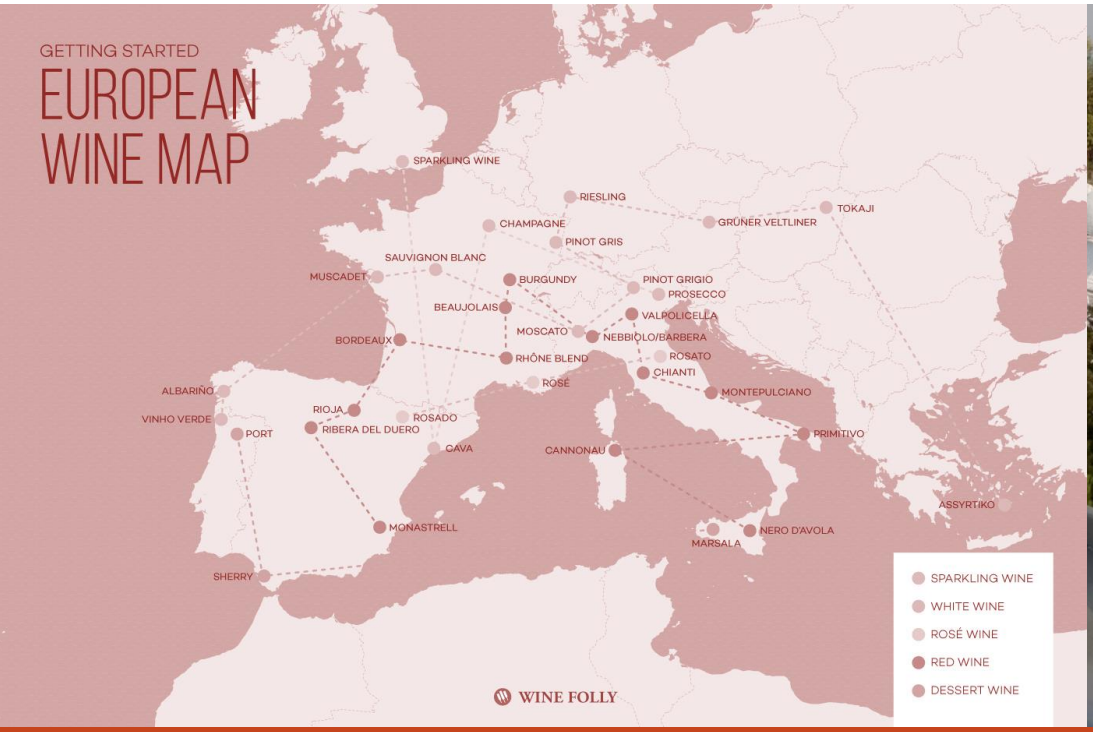
WINE SECTOR LEADER

Growing for 50 years
Over €200M of Business Volume
Long-term vision

SOGRAPE ORIGINAL LEGACY WINES

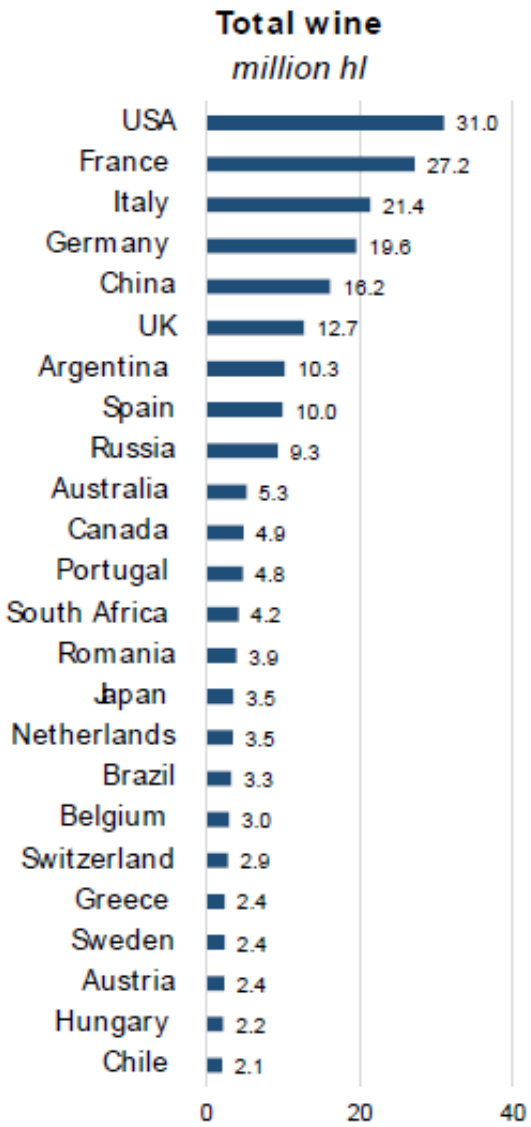
A responsive and functional organization

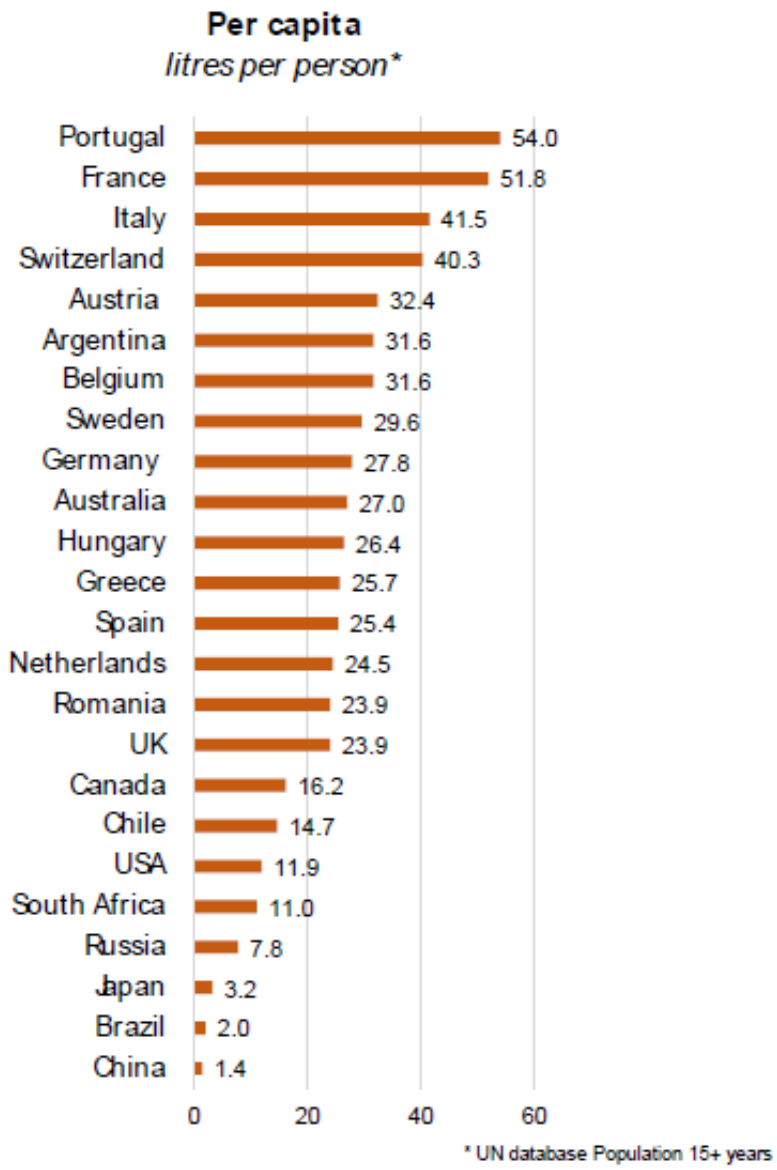
SOGRAPE ORIGINAL LEGACY WINES



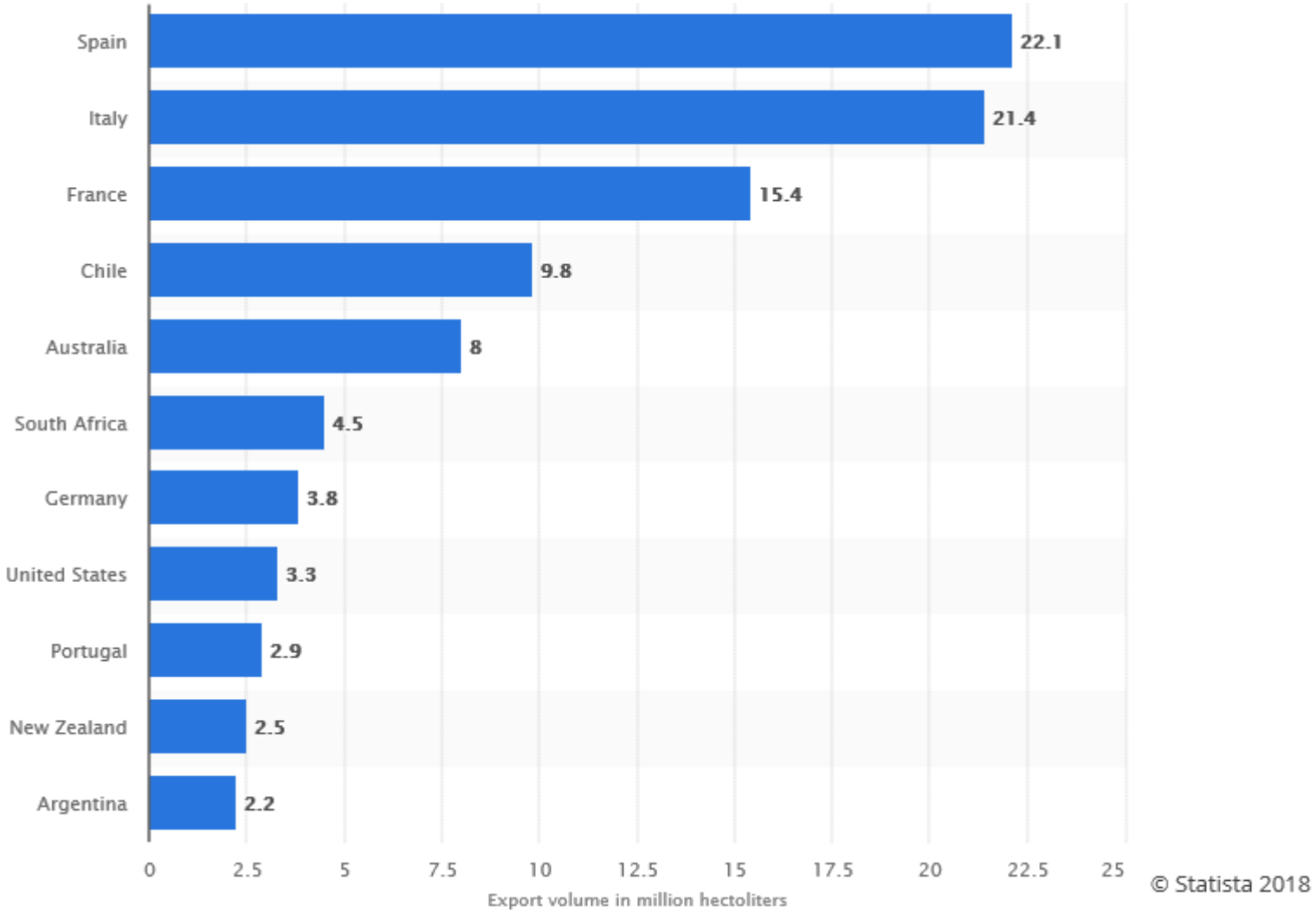
WINE SECTOR

Wine consumption 2015





Leading countries in wine export worldwide in 2017, based on volume (in million hectoliters)



SOGRAPE ORIGINAL LEGACY WINES

ceev comité européen des entreprises vins

Comité européen des entreprises vins

Representative body of the EU industry and trade in wines

Home | About us | Members | About the EU wine sector | Policy dossiers | News, events & press releases | EU-China project

About the EU wine sector

World leaders

The European Union is the world's leading producer, consumer, exporter and importer of wine, accounting for:

- 45 % of wine-growing areas,
- 65 % of production,
- 57 % of global consumption and
- 70 % of exports in global terms.

fonte: http://www.ceev.eu/about-the-eu-wine-sector

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VINHOS PORTUGAL

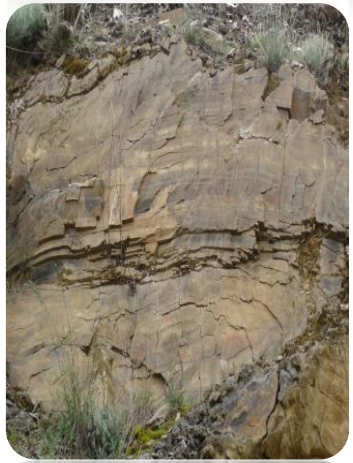
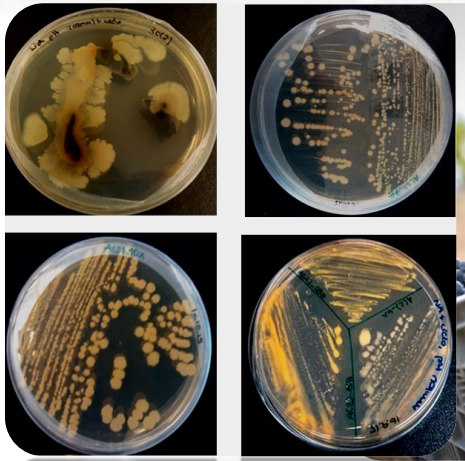
PART OF SOGRAPE ORIGINAL LEGACY WINES

SOGRAPE ORIGINAL LEGACY WINES

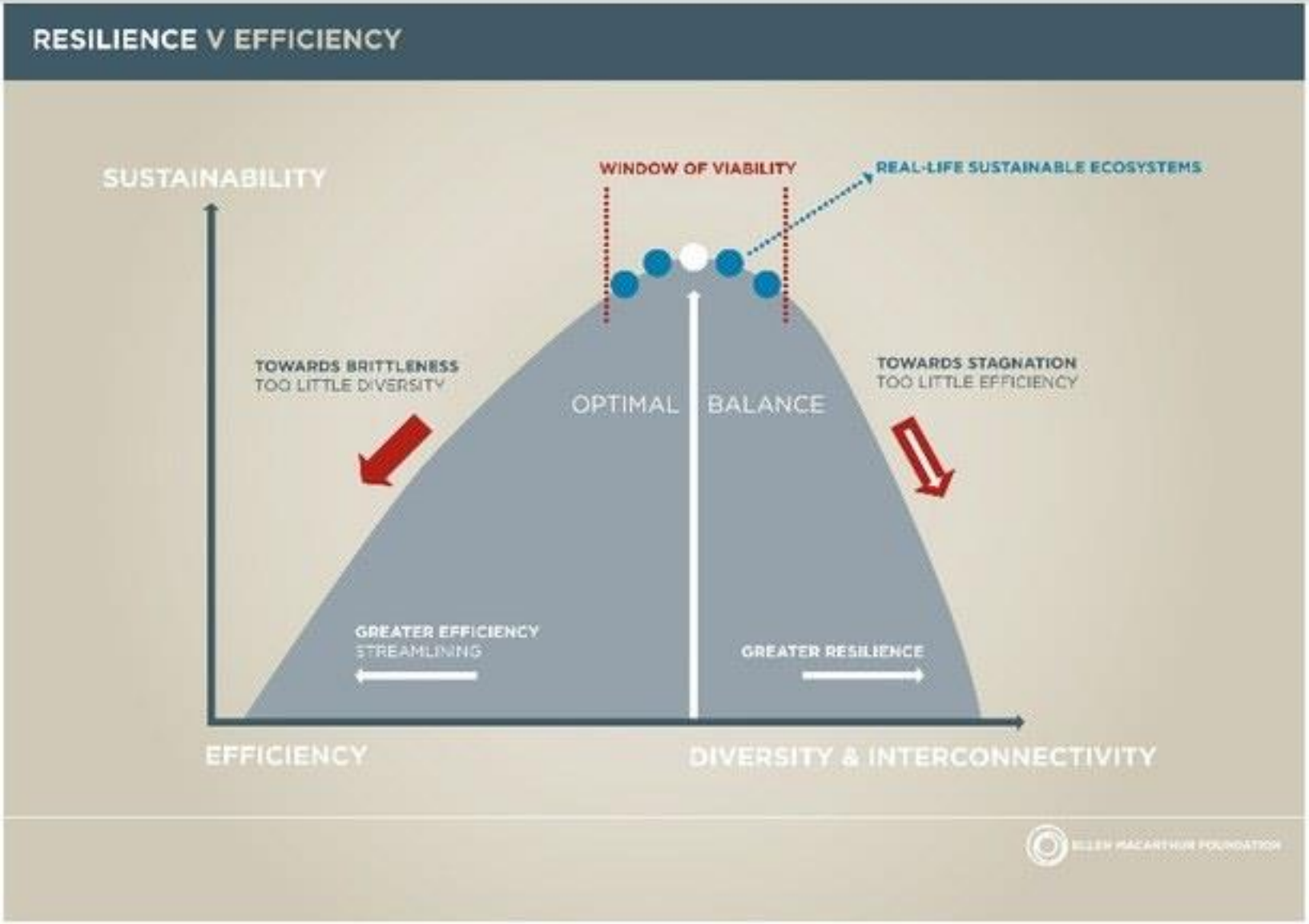
SUSTAINABILITY & WINE BUSINESS

SOGRAPE ORIGINAL LEGACY WINES

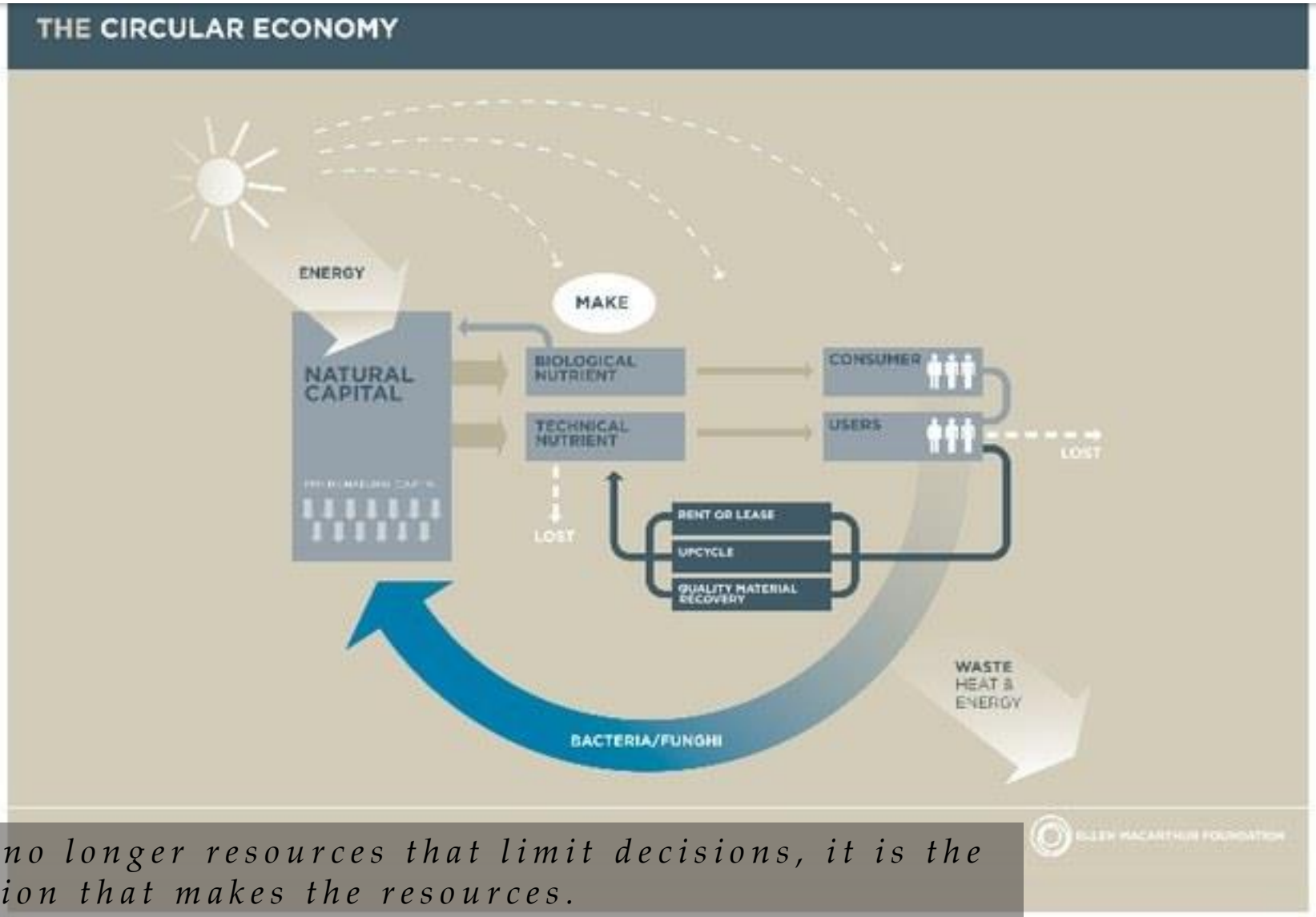
Sustainable grape and wine production

Sustainable grape and wine production



Bio-economy – an economy based primarily on biogenic instead of fossil resources



It is no longer resources that limit decisions, it is the decision that makes the resources.

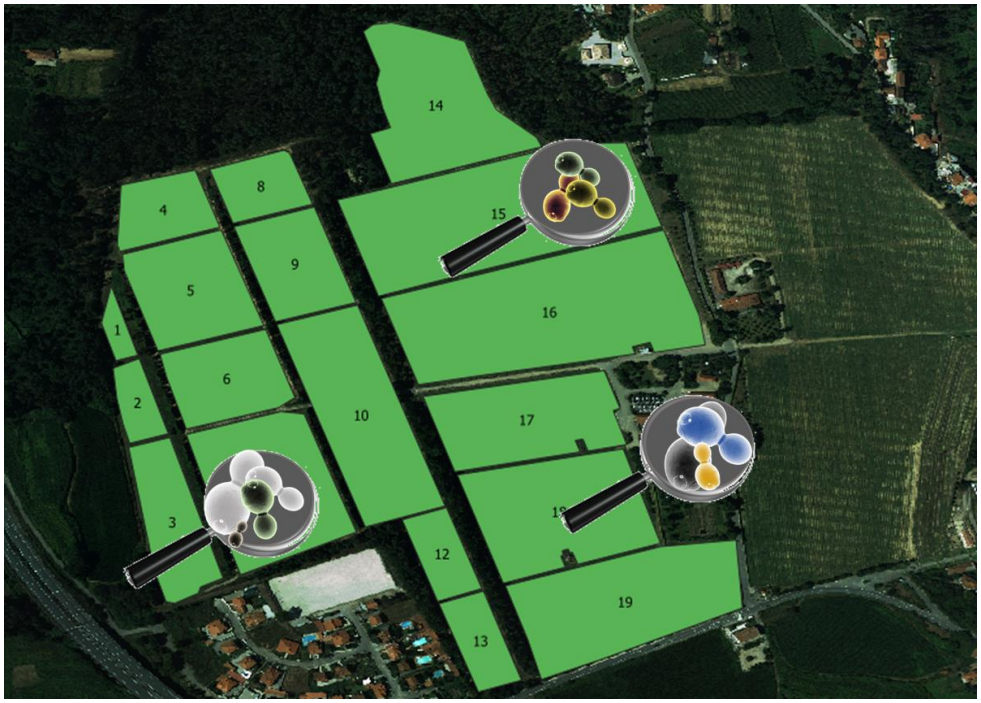
Alvin Toffler

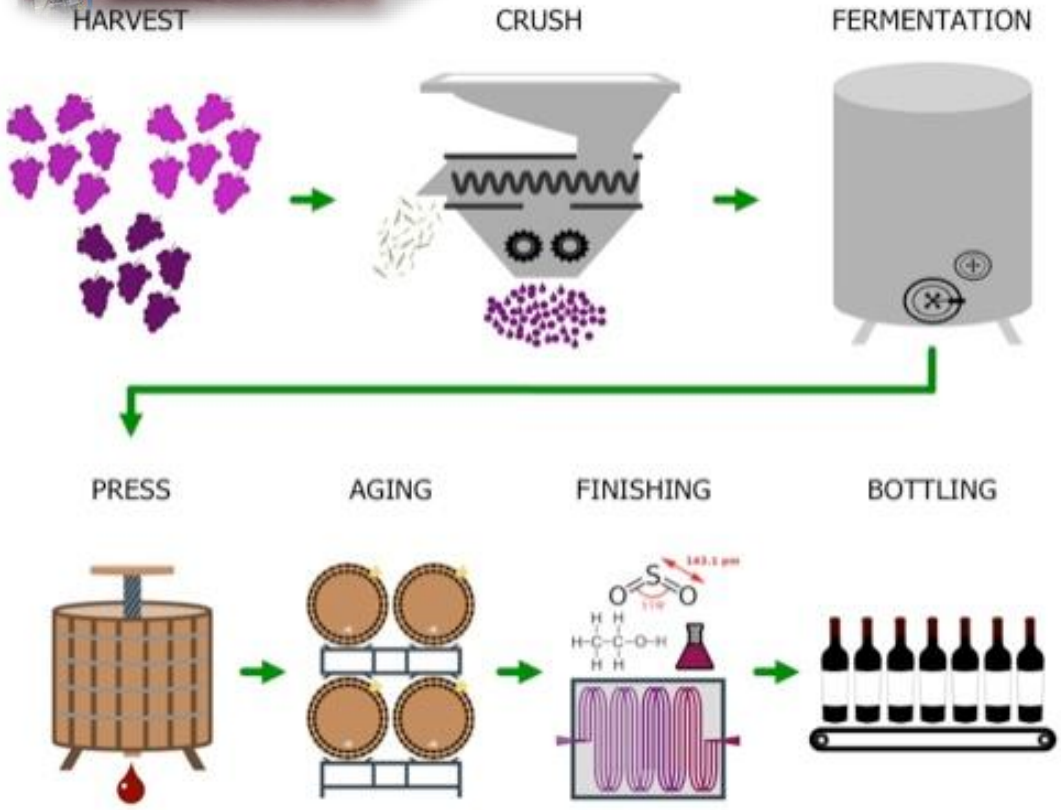
MICRORGANISMS & VALUE CHAIN

"Unveiling the microbiome and its Dynamics, and understanding the ecological factors that explain such biodiversity, has been a challenge to oenology"

Pinto et al. 2015 Frontiers in Micriobiology

Wine fermentation microbiome: a landscape from diferent Portuguese wine appellations





How microbes drive sustainability into the wine business

MICROBIAL-DRIVEN ECOSYSTEM SERVICES

Provision Services

- Nutrients
- Clarifying agentes (yeast proteins)
- Genetic Pool
- Fibre/materials

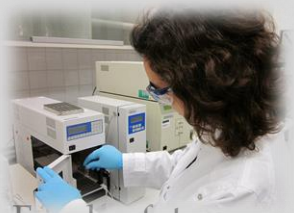
Supporting services

- Alcoholic Fermentation/ Primary Productivity
- Nutrient cycling
- Soil health

Regulating Services

- Climate regulation
- Diseases regulation
- Water purification
- Biotic and Abiotic stress

IMPACT



Food safety

Environmental sustainability

Adaptation to Climate change

Industrial Growth (consumption & new products)

SUSTAINABLE DEVELOPMENT GOALS

6. Clean Water
7. Clean Energy
8. Economic Growth
9. Industry Innovation
12. Responsible Consumption
13. Climate Actions

Adapted from Timmis et al. 2017

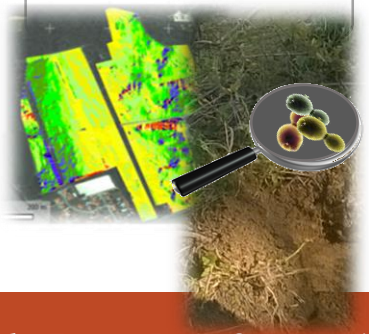
R&D Projects

VINICULTURE → **ENOLOGY** → **BOTTLING** → **MARKETING AND COMMERCIAL** → **DISTRIBUTION & CONSUMPTION**

Grape production in five countries of origin

Production, storage and ageing

PROGRIN



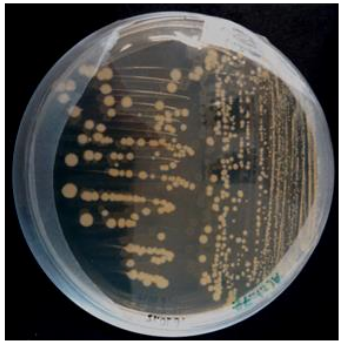
LEVEALLIANCE

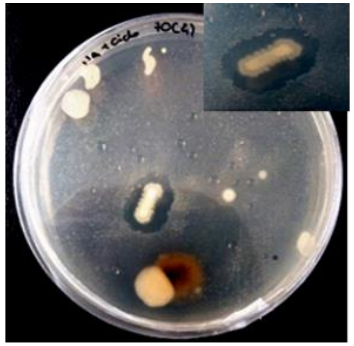
STOPAB

PAPER-(e)

MYCOPAL

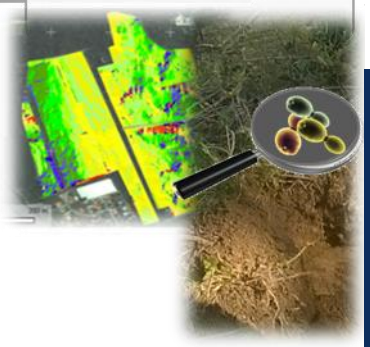
SOGRAPE ORIGINAL LEGACY WINES





VINEYARD

PROGRIN



SOGRAPE VINHOS PORTUGAL

PART OF SOGRAPE ORIGINAL LEGACY WINES

Grapevine growth response to bioinoculants and biochar application

Pereira, S.I.A[1]., Moreira, H.[1], Vega, A.[1], Couto, A.[1], Porto, J.[2], Fontes, N.[2], Graça, A.[2], Castro, P.M.L.[1]

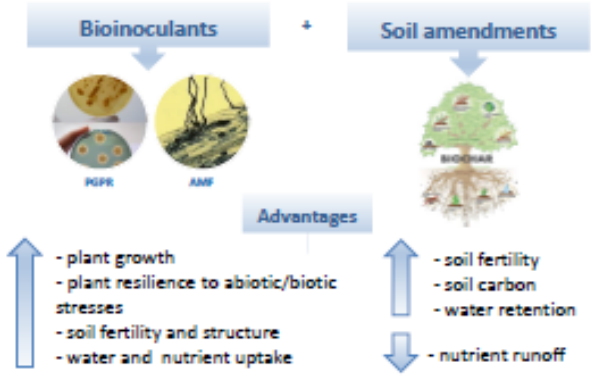
[1]CBQF – Centro de Biotecnologia e Química Fina – Laboratório associado, Escola Superior de Biotecnologia – Universidade Católica Portuguesa/Porto
[2]Sogrape Vinhos S.A., Aldeia Nova, 4430-809 Avintes, Portugal

CATÓLICA FACULTY OF BIOTECHNOLOGY PORTO

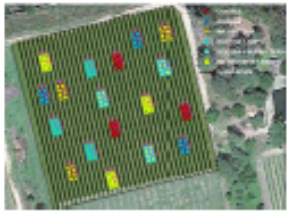
Aim and Scope

Plant growth promoting rhizobacteria (PGPR) and arbuscular mycorrhizal fungi (AMF) can establish symbiotic association with grapevine roots and due to their plant-beneficial traits they can enhance the growth and quality of vineyards.

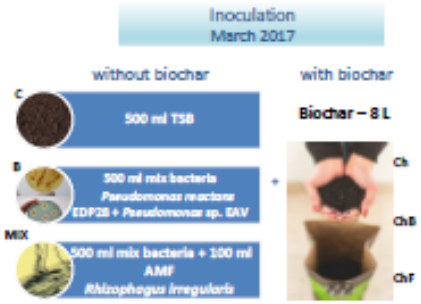
This work aims to assess the effect of microbial inoculants and soil amendments (biochar) on vegetative parameters of new grapevines and on productive parameters of 10-years old grapevines.



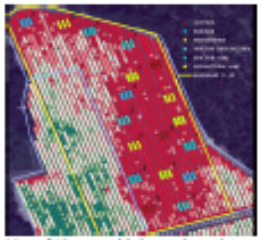
New vineyard



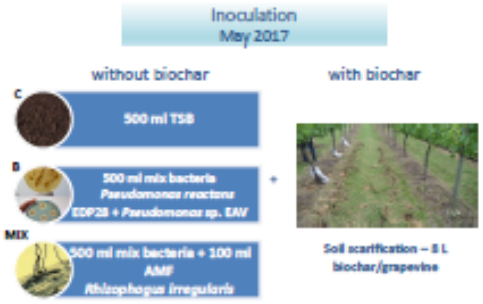
Map of new vineyard - variety Alvarinho



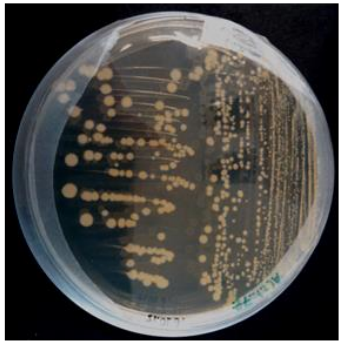
10-years old vineyard

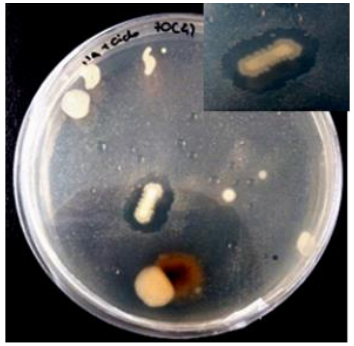


Map of 10-years old vineyard - variety Alvarinho



6 treatments x 3 plots: C - controlo ; Ch - Biochar ; ChB - Biochar + mix bacteria; ChF - Biochar + AMF; B - Mix bacteria; MIX - Mix bacteria + AMF





WINEMAKING

LEVEALLIANCE

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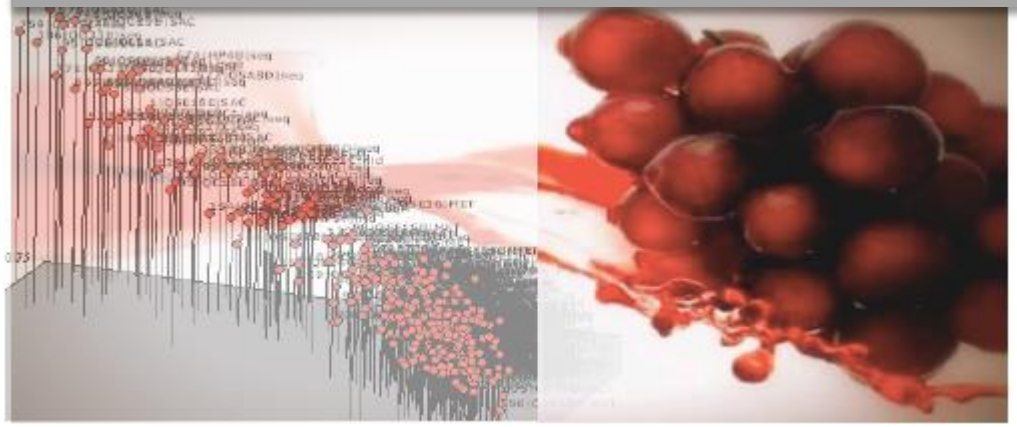
Portfolio of non-Saccharomyces yeasts and natural adaptively evolved to produce wines with lower alcohol content.



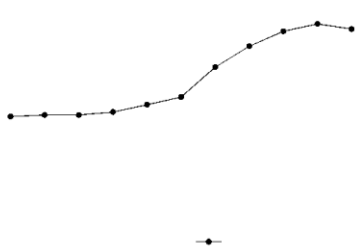


Figura - Evolução da acidez total durante o ensaio com as leveduras 454|LCH e 483|LCH na forma encapsulada seca. R1 e R2 referem-se aos duplicados de cada ensaio.

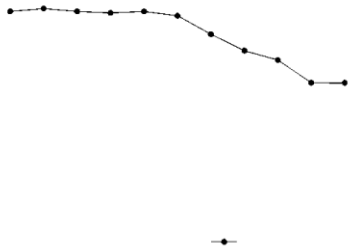
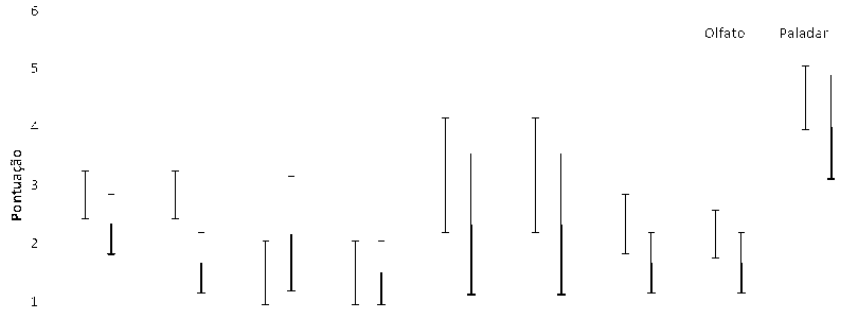


Figura - Evolução do consumo dos açucares durante o ensaio com as leveduras 454|LCH e 483|LCH na forma encapsulada seca. R1 e R2 referem-se aos duplicados de cada ensaio.



Proenol

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Ciências ULisboa Faculdade de Ciências da Universidade de Lisboa

BioISI Biosystems and Integrative Sciences Institute

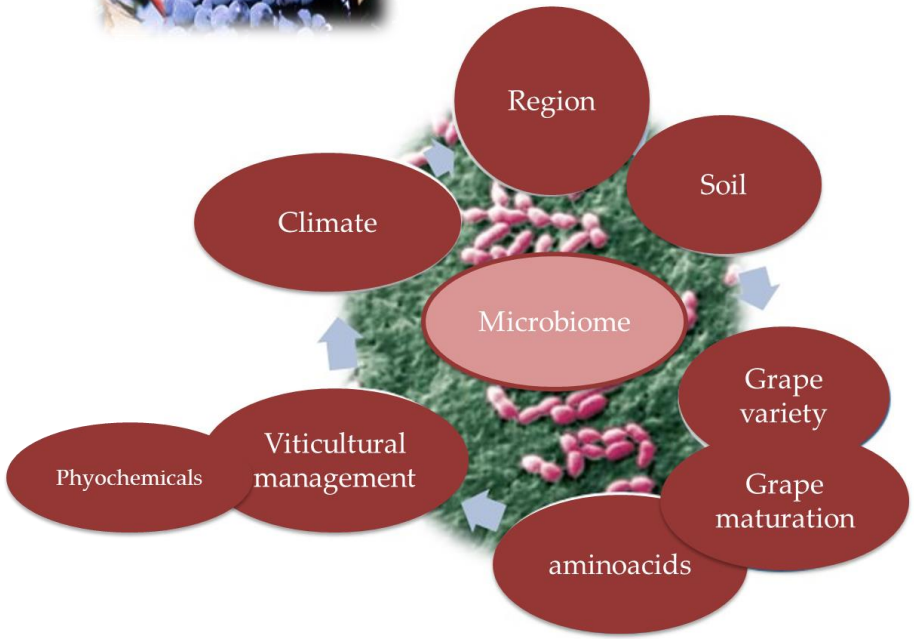
Bugworkers

COMPETE

QREN QUADRO DE REFERÊNCIA ESTRATÉGICO NACIONAL

UNIÃO EUROPEIA Fundo Europeu de Desenvolvimento Regional

STOPAB



The origin of biogenic amines in Alentejo musts and wines: a challenge to our minds

Isolate in pure culture the microbial community associated with several samples from grapes and musts from the problematic region and **study their potential for the production of BAs.**

STOPAB

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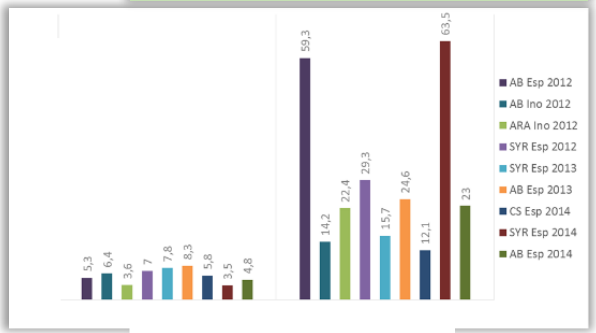
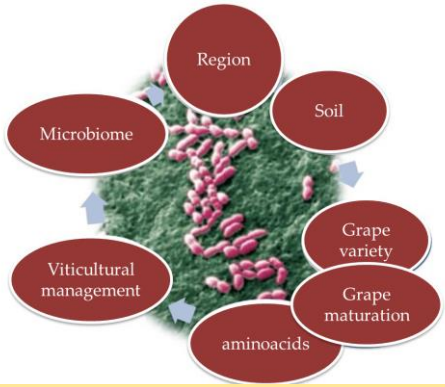
Region has a Strong effect on BA levels, both must and wine Alentejo ↑

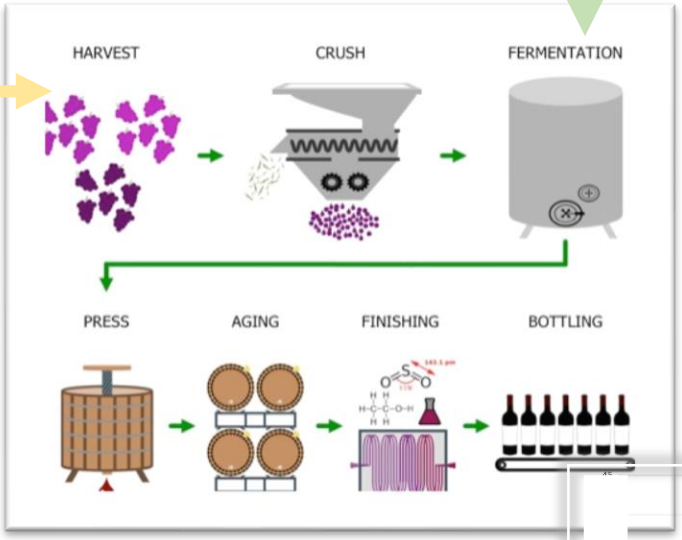
↑ BA levels in must;

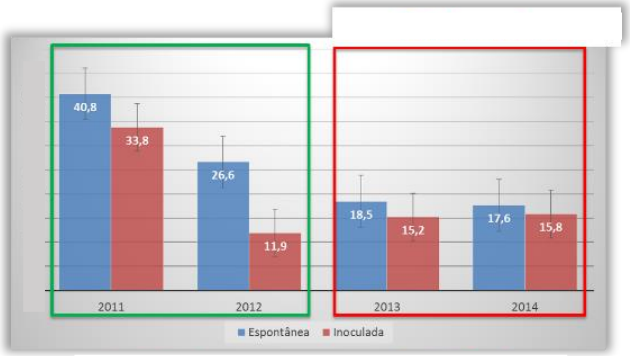
↑ BA after MLF



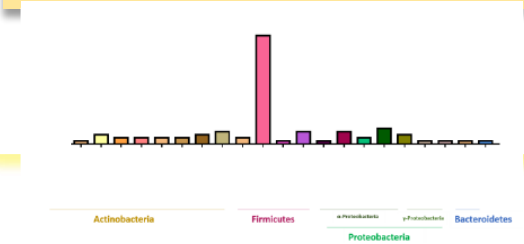


Harvest and Grape variety – evident effect on BA levels

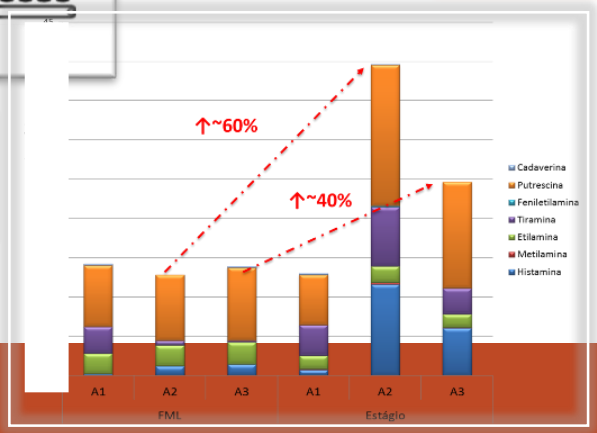




Lactic Acid bacteria starter cultures seems to ↓BA wine levels



↑BA evident during wine ageing



Microbial Fuel Cells

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LEGACY
WINES

MARKETING AND COMMERCIAL

PAPER-(e)

ELECTRONIC PAPER (e-Paper)

Paper-e®

UNIVERSIDADE NOVA DE LISBOA

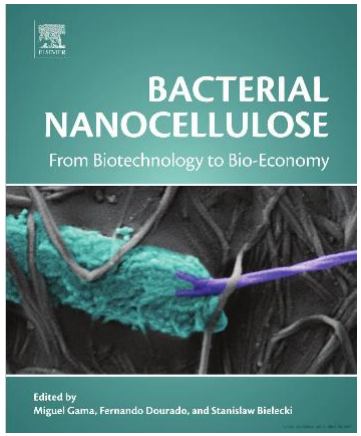
Bacterial Cellulose

CHAPTER 11

Optoelectronic Devices from Bacterial NanoCellulose

Elvira Fortunato*, Diana Gaspar*, Paulo Duarte*, Luís Pereira*, Hugo Águas*, António Vicente*, Fernando Dourado**, Miguel Gama**, Rodrigo Martins*

*i3N/CENIMAT, Department of Materials Science, Faculty of Science and Technology, Universidade NOVA de Lisboa and CEMOP/UNINOVA, Lisbon, Portugal; **Minho University, Biological Engineering Department, Campus de Gualtar, Braga, Portugal



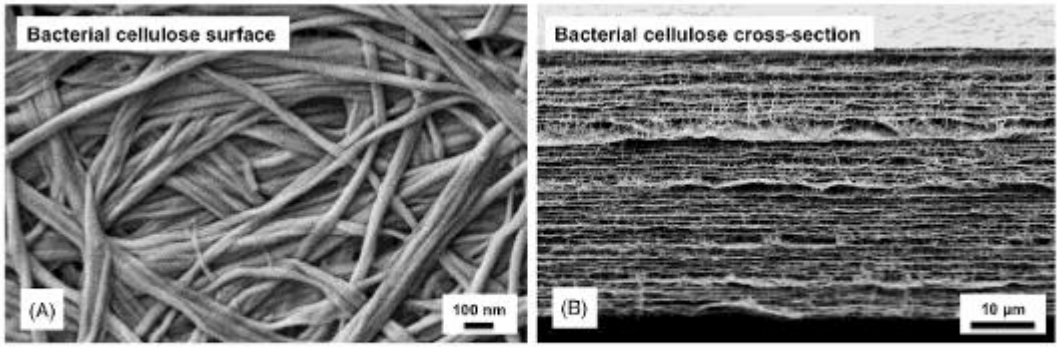


Figure 11.4: (A) Surface scanning electron micrograph of bacterial cellulose obtained from direct drying process and (B) corresponding cross-section. The membrane thickness after drying has approximately 40 µm.

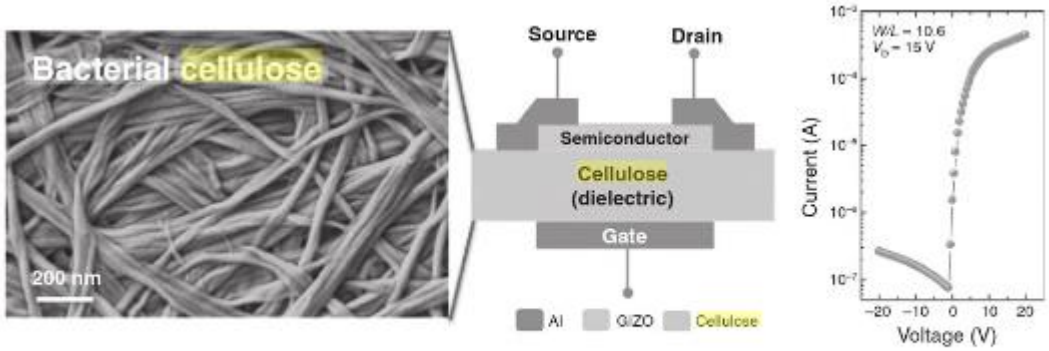


Figure 11.9: SEM micrograph of BC (left); scheme of staggered-bottom gate structure FET using BC as a dielectric layer (center), and I_{DS}–V_{GS} transfer characteristic curve of a BC FET (right).

DISTRIBUTION & CONSUMPTION

MYCOPAL

Grape Winery Waste as Feedstock for Bioconversions

MARÇO A JUNHO 2017

CONCURSO DE IDEIAS PARA PROJETOS DE NEGÓCIO

BIOTECH agrifood innovation

Projeto

Execução

Paula Castro and co-workers, ESB- UCP, Portugal

TAKE HOME MESSAGES

- ✓ Wine is an important sector of the European agri-food economy;
- ✓ The resilience of production systems and their sustainability depends on knowledge of the diversity;
- ✓ Microbiological phenomena underlying wine-growing, winemaking and consumption processes are key for better management strategies;
- ✓ The circular paradigm is only viable through biology. The production, commerce and consumption of wine is the greatest example of this;
- ✓ **Your mission is to render the invisible visible and, doing so to empower wine businesses for greater sustainability and accountability.**

SOGRAPE ORIGINAL LEGACY WINES

SANDEMAN

CASA FERREIRINHA
EM CADA VINHO UMA HISTÓRIA.

QUINTA DE AZEVEDO

OFFLEY
EST 1737
PORTO

MATEUS ROSÉ

AZEVEDO

FERREIRA
EST2 1751
PORTO

CALLABRIGA
A new wine from the old world.

HERDADE do PESO
VIDIGUEIRA DE CORPO E ALMA

QUINTA DOS CARVALHAIS
IMENSO SABER, IMENSO SABOR

LEGADO

Gazela

GRÃO VASCO

SOGRAPE

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