OENOBIO

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International Conference
OENOBIO

Organic vines and wine advancement and challenges

University of Bordeaux

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Book of Abstracts

Coordinator:
Pierre-Louis TEISSEDRE

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USAMV București

Universitat Rovira i Virgili

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3rd OENOBIO International Conference 2021

Organic vines and wine advancement and challenges

Tuesday 13th July 2021

Online on Zoom Hosted by the University of Bordeaux – Institute of Vine and Wine Sciences

9:00-09:05	**OENOBIO Conference Opening**	
09:05-09:10	Introduction by UB representatives and Oenobio Coordinator *(10 mins)*	Laurent Servant, UB P-L. Teissedre, ISVV A Blanchard, ISVV
09:10-10:00	OENOBIO: Synthesis of the strategic partnership project and actions for vines and wines organic production *(40 mins)* Chat & questions *(10 mins)*	P-L. Teissedre - A. Lairy *(20mins)* OENOBIO Partners *(20mins)*
10:00-10:20	"Organic wine future and regulations" *(20 mins)* EU level	D. de Froidmont - EU
10:20-10:30	Chat & questions *(10 min)*	
10:30-11:45	**Organic viticulture and Biodiversity**	
10:30-10:45	"Soil microbiology of vineyards: which viticultural practices for a living soil?" *(15 mins)*	L. Ranjard - INRA Dijon
10:45-11:00	"Organic and biodynamic viticulture enhance biodiversity" *(15 mins)*	R. Kauer – HGU
11:00-11:15	"Organic viticulture and table grapes" *(15 mins)*	V. Novello – UNITO
10:15-11:30	"ECOVIN's Biodiversity Programme for German Organic Viticulture" (15 mins)	Petra Neuber - ECOVIN
11:30-11:45	Chat & questions (10 min)	
14:00-15:00	**Organic practices and protections**	
14:00-14:15	Intellectual Outputs productions of the OENOBIO Project *(15 mins)*	P-L. Teissedre - UB
14:15-14:30	"Alternatives to copper in organic viticulture: can we take advantage of plant defense mechanisms?" *(15 mins)*	S. Cluzet - UB
14:30-14:45	« Development of viti-viniculture of Organic Viticulture in Spain : History and future"*(15 mins)*	J-M. Canals – URV
14:45-14:55	"Effect of maceration time on the red wines produced from organic grapes from plantations with different yields" *(10 mins)*	A O. Antoce - USAMV
14:55-15:10	Chat & questions *(15 mins)*	
15:10-16:15	**Organic wine production**	
15:10-15:30	"Regulation of organic winemaking and desire to reduce inputs in oenology" *(20 mins)*	S. Becquet – VBNA
15:30-15:45	"Microbiology management in organic wine production" *(15 mins)*	P. Lucas – UB
15:45-16:00	"Organic wine market in France and export" *(15 mins)*	A Hubert - VBNA
16:00-16:15	Chat & questions *(15 mins)*	
16:15-16:30	**OENOBIO Conference closing**	

SUMMARY

OENOBIO: A STRATEGIC PARTNERSHIP FOR VINES AND WINES ORGANIC PRODUCTION – OUTPUTS AND CONCLUSIONS

Agathe LAIRY, Pierre-Louis TEISSEDRE,

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Abstract

The Strategic Partnership OENOBIO gathers a Consortium of 7 European partners since 2018: University of Bordeaux, Hochschule Geisenheim University, USAMV Bucuresti, Universitat Rovira i Virgili, Universita di Torino, Syndicat des Vignerons Bios d'Aquitaine and ECOVIN.

With increasing awareness of environmental sustainability, health benefits and the need to reduce reliance on chemical inputs in viticulture, grape growers, winemakers and consumers have become the driving force behind the growth in organic grape and wine production. However, supporting research and educational programs have not kept pace with this increased industry and consumer interest at a coordinated European level. Specializing viticulture and oenology students in this field, with an approach that brings together key educational and industry partners from across Europe is therefore a priority. It is notable that the organic vineyards have exhibited far higher growth rates than the overall organic farmland.

In this context, the OENOBIO Consortium has established the following main goals in order to address this necessity:

1) Developing Intensive Study Programmes (ISP) dealing with organic viticulture and wine fields: 3 Summer Schools have been developed within the OENOBIO Project, hosted by Hochschule Geisenheim University (2019), Universitat Rovira i Virgili (2021) and Universita di Torino (2021).

2) Creating a Learning Management System (LMS) for ISP Master Students: The COVID19 pandemic has definitely impacted the activities of the OENOBIO project, particularly the mobility. However, the increased usage of online platforms has allowed the students and partners to become familiar with these pedagogical tools. During Summer Schools, students were able to access online platforms to interact and review class material. The second Summer School was even conducted entirely online, allowing students to follow the course at their own pace.

3) Building a mutualized Master pathway programme between the OENOBIO consortium partners by using the LMS: Building a pathway programme between 5 different countries is a challenging, especially when taking into account the academic requirements of each country and envisioning the different mobilities of students. OENOBIO partners have decided to build a brand new format of Master pathway in 1 year, combining periods of online teaching and learning, face-to-face classes and an internship within the professional world. This format, envisioned before the COVID-19 pandemic, now fits with the current reality of academia and the necessity of remote teaching.

4) Progressively opening the ISP and LMS to the socio-professional sector to support Life Long Learning: By partnering with 2 professional associations that are important actors of the field, the OENOBIO universities are building links with the professional world and providing Life Long Learning opportunities to individuals wishing to be trained in organic viticulture and enology, or wine estates wishing to take on the journey to organic conversion.

During the last decades, there has been an increasing demand for organic and inherently ‘green’ wine products. In addition, over the past few years, the EU has been developing codes of good practices for organic viticulture and winemaking, focusing on the development of environment and consumer friendly technologies for organic wine quality improvement and scientifically based legislative frameworks. The demand of knowledge in Europe regarding organic vine and wine production is now also originating from the industry and the needs of specialization of oenologists' students in this field has therefore become a necessity. To respond to this demand, the five partner universities have decided to collaborate in this context by sharing their experiences and teaching contents focusing on organic vine and wine production. Our harmonized European programme in organic vine and wine production is innovative with the COVID-19 situation.

The OENOBIO project is unique and innovative: today there is no harmonized European programme in organic vine and wine production, in the sense of relating soils, vine plants, microorganisms, winemaking process and quality control across a wide range of climate zones and of environmental problems essential to Europe.

OENOBIO enabled to increase multilateral collaboration between European universities and the professional sector, provided opportunities for students and teachers to work together in multicultural and multidisciplinary groups and learn from each other, developed innovative education practices and transfers of knowledge, and led to the creation of an innovative Master Pathway programme, and the first of its kind.

As the Strategic Partnership project is coming to its conclusion, 100 students benefited from the Intensive Summer Programmes, taught by almost 30 different professors. A total of 540 participants attended the first two OENOBIO conferences, and we hope to reach an even wider audience for this last dissemination conference. In-depth academic content has been developed thanks to this Strategic Partnership, which will provide high-level skills for the future OENOBIO Master graduates.

Keywords: organic, wine, vine, international, Master, cooperation

ORGANIC WINE, EU REGULATION FROM 1 JANUARY 2022

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Abstract

From the 1 January 2022, the Regulation (EU) 2018/848 of the European Parliament and of the Council on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007 will apply. It includes in particular the plant production rules applicable to viticulture and some specific production rules for winemaking. These rules will be complemented by the Commission Implementing Regulation (EU) …/… of xxx authorising certain products and substances for use in organic production and establishing their lists; it should be adopted soon and published in the Official Journal of the European Union. This future Regulation will list in particular the products and substances for use in organic production of wine with the references to the authorised oenological practices for conventional wine listed in part A of Annex I to Delegated Regulation (EU) 2019/934. For some products and substances, this future Regulation will include additional specific conditions and limits for organic production. These new rules will be similar to the current rules on organic wine and should be updated regularly with the positively evaluated requests from Member States. The available data confirm the growing of organic wine sector in EU (the percentage of grapes area under organic farming has increased from 7 % in 2012 to 12% in 2019).

Keywords: European legislation, Organic wine

SOIL MICROBIOLOGY OF VINEYARDS: WHICH VITICULTURAL PRACTICES FOR A LIVING SOIL?

Lionel RANJARD

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Abstract

The microbiological quality of soils - defined as the capacity of a soil to host a large quantity and diversity of living organisms involved in its functioning and in the provision of ecosystem services - is currently questioned for viticultural systems. Recent works have demonstrated a global and systematic decrease of the abundance and diversity of the organisms living in vineyard soils compared to other agricultural soils or natural ecosystems. Viticultural practices are now well known to have deleterious impacts of the soil physical and chemical properties, but their impact on the soil microbiological quality is still poorly documented. Recent advances in molecular biology have allowed for the development of new molecular tools based on soil DNA extraction and characterization. This has significantly improved our capacity to characterize soil microbial abundance and diversity. These tools have been applied on several thousand soils across the French national territory, using the soil monitoring quality network. The results evidenced that vineyard soils exhibit lower microbial biomass but greater bacterial diversity than other agricultural soils or natural ecosystems.

The development of citizen science projects gathering winemakers and scientists for the scientific evaluation of their soil microbiological quality has permitted to identify and rank the impact of the various viticultural practices on soil microbiology, as well as the impact of production systems (conventional vs. organic vs. biodynamic systems).

Key words: soil, microorganisms, biodiversity, viticultural practices

ORGANIC AND BIODYNAMIC VITICULTURE ENHANCE BIODIVERSITY

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Abstract

Biodiversity is the biological variety and variability of life on Earth. United Nations designated 2011–2020 as the United Nations Decade on Biodiversity and 2021–2030 as the United Nations Decade on Ecosystem Restoration. During the last century, decreases in biodiversity have been increasingly observed. Biodiversity is described in 3 different areas of life - ecosystems, species, genes.
Viticulture, as a perennial crop, has a large potential of possibilities to enhance biodiversity compared to other agricultural cropping systems.
The micro- and macrofauna of vineyards is an important part of terroir. It directly affects soil fertility, nutrient supply, presence of antagonists to pathogenic micro- and macroorganisms and influences vine health, growth, yield, and grape quality

Especially organic and biodynamic viticulture management shows a lot of advantages concerning effects on biodiversity. Long term investigations in the INBIODYN trial at Geisenheim University proves positive effects on floral and faunistic biodiversity by using multispecies cover crop mixtures and customized treatments (no use of herbicids, rolling instead of moving).

Additionally there is strong evidence that organic and biodynamic management in viticulture has a positive effect on the biological performance of the soil. Soil biological communities are strongly shaped by the cover cropping strategy and tillage.

Other efforts like non-cropped area between grapevine rows, rich local habitat structures (hedges, stonewalls, solitary trees) should be implemented in viticulture to enhance biodiversity of ecosystems, species and genes.

Keywords: Biodiversity, organic viticulture, biodynamic viticulture, *Vitis vinifera*, Riesling, viticulture managment systems, soil, fauna, flora

ORGANIC VITICULTURE AND TABLE GRAPE

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Abstract

According to the OIV resolution ECO 460-2012, the organic vitiviniculture is a system that maintains the ecosystem, the soil fertility, it increases biodiversity and protection of natural resources, promotes ecological process, minimizes or eliminates the use of chemical synthesis products, uses organic products and process during product transformation, avoiding any negative impact on the environment, it excludes the use of genetically modified organisms and inputs issue from them.

These principles can be adapted on all viticultural production systems, such as wine, fresh consume, raisins, but they are most important in the table grape systems, since the production (fresh or raisin) is direct eaten by the consumer: there is an increasing demand for residue-free fresh grapes, and an increasing market.

The organic wine vineyard surface has increased a lot in the last years (about 6% of the world vine surface), especially in the old continent (about 10%), mostly in Spain, Italy, French and Germany, while no information is known about the organic table grape vineyard surface, even if also this industry has started to move toward the organic production.

To produce organic table grape is more difficult than wine grape, do to the fresh consumption of grapes, and the stricter environmental conditions: organic table grape needs warm areas, such as Turkey, South Italy, California, South Africa, India and it is more difficult and delicate in cool and humid environment, with good site concerning healthy soil.

Table grapes need to maintain a nice appearance in the market, to attract the consumer, also after transportation and/or some period of preservation: this is very difficult without applying the forbidden synthetic herbicides and crop protection products, maintaining the higher quality and nutraceutical properties; several studies have been done to find organic alternatives, but not all cultivars respond in the same way to the chemical compound. Some cultural techniques could help to protect against pests and diseases. One solution is the evolution of the genetic improvement to obtain resistant/tolerant varieties to the mildews: in the last times several resistant or tolerant varieties to the main diseases are available, which may reduce the interventions for pest control, and consequently the presence of residual on the berries.

Some local regulation can be applied to characterize organic table grape production, and it starts to appear also some certification to protect the organic production.

Keywords: *Vitis vinifera*, pest and deseas control, organic alternative to chemicals

ECOVIN'S BIODIVERSITY PROGRAMME FOR GERMAN ORGANIC VITICULTURE

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Abstract

The Federal Association of Organic Winegrowers ECOVIN was founded in 1985. Even at the time of its founding, the main motivation of the pioneers of organic viticulture was to practice sustainable viticulture, i.e. to bring the elements of ecology, economy and the social into balance. The issue of biodiversity has been constantly developed and in 2019 was anchored in the ECOVIN guidelines with the "Biodiversity Action Plan".

The Biodiversity Action Plan (BAP) is the result of a joint project work of ECOVIN, the Lake Constance Foundation and the Global Nature Fund in 2012-2014, as well as the project "European Partnership for the Protection of Biodiversity in Viticulture" (2015-2018). The BAP includes over 100 smaller and larger measures. It examines the various corporate areas of management, cultivation and production in the vineyard, cellar management, purchasing, sales, transport and communication / marketing with regard to impacts on biodiversity. Direct and indirect effects of the operations are considered equally, i.e. also effects that may arise along the supply chain or in post-productive use.

The Biodiversity Action Plan can be used by all winegrowers, regardless of whether they practise organic or conventional farming. The BAP and instructions for use can be downloaded from the ECOVIN website (https://www.ecovin.de/biodiversitaet/).

In 2016, the Biodiversity Action Plan was both awarded the Rheinhessen Sustainability Prize and recognised as an official project of the UN Decade of Biological Diversity.

Keywords: Biodiversity, sustainability, BAP, viticulture

OENOBIO: SYNTHESIS OF THE STRATEGIC PARTNERSHIP PROJECT AND ACTIONS FOR VINES AND WINES ORGANIC PRODUCTION

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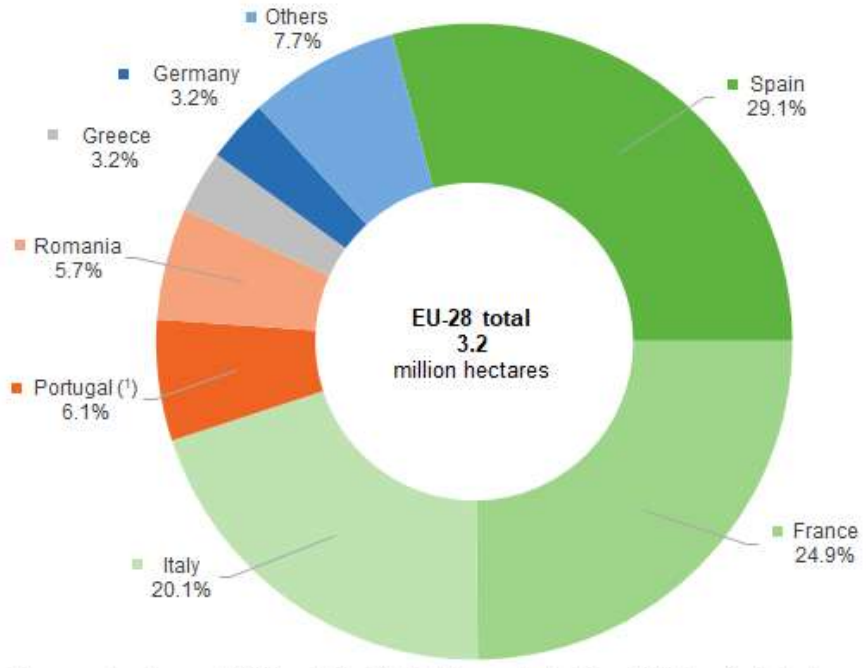
Abstract

The Strategic Partnership OENOBIO gathers a Consortium of 7 European partners 5 academics and 2 professionals since 2018: University of Bordeaux, Hochschule Geisenheim University, USAMV Bucuresti, Universitat Rovira i Virgili, Universita di Torino, Syndicat des Vignerons Bios d'Aquitaine and ECOVIN. Based on the Eurostat publication *Agriculture, forestry and fishery statistics*, vines were grown in the EU on 3.2 million hectares in 2015. The EU represented around 45 % of the world's total area under vines. The structural statistics on vineyards in the European Union (EU) is a tool for monitoring the market of wine and other grape-based products and are collected every 5 years. The data collection covers the area under vines, the number of winegrower holdings as well as other indicators such as the size class of the winegrower holding, the main vine varieties and age of vines. There were 17 large-scale wine grower Member States. Three Member States — Spain, France and Italy — made up close to three quarters (74.1 %) of the EU area under vines (see Figure 1). Portugal, Romania, Greece and Germany were the next largest producers with a total share of 18.2 %. Hungary, Bulgaria, Austria, Croatia, the Czech Republic, Slovenia and Slovakia followed. Cyprus, the United Kingdom and Luxembourg each had less than 8000 ha of area under vines (0.3 % of the total area under vines). Malta was below the reporting threshold for structural vineyard data collection with 450 ha of vines.



(1) Região Autonoma dos Açores (PT20) and Regioão Autónoma da Madeira (PT30): not included.

More than 403’000 hectares of organic grapes are grown in 2016, constituting 5.8% of the world’s grape-growing area (altogether 7.1 million hectares). Almost 90% of the world’s organic grape area is in Europe. The rest is distributed almost equally among Asia, North America, and Latin America. In Europe, over 340’000 hectares of vineyards are organic (8.7% of the harvested grape area). In 2017 the countries with the largest organic grape areas are Spain and Italy, each with more than 100’000 hectares of organic grapes, followed by France with over 78’000 hectares (today = 94 000 ha). Based on current trends, these figures are expected to grow by 50% for 2030. The world progression is regular and high; in recent years, organic viticulture has gained more and more importance. A large part of the total grape area (at least 24 percent) is in conversion. Thus, a considerable increase in the supply of organic grapes may be expected, particularly from Italy, Spain, France, Germany and Romania.

In the recent past, there has been an increasing demand for organic and inherently ‘green’ wine products. In addition, over the past few years, the EU has been developing codes of good practices for organic viticulture and winemaking, focusing on the development of environment and consumer friendly technologies for organic wine quality improvement and scientifically based legislative frameworks. The demand of knowledge in Europe regarding organic vine and wine production is also originating from the industry and the needs of specialization of oenologists' students in this field has therefore become a necessity. To respond to this demand, the five partner universities have decided to adapt to this context by sharing their experiences and teaching contents focusing on organic vine and wine production.

In this context, we established the following main goals in order to participate in the support of development in particular at the level of training and popularization of work and knowledge in this field:

1) Developing Intensive Studies Program (ISP/Summer schools) and international conferences dealing with Organic viticulture and wine fields.

2) Creating a Learning Management System (LMS) for ISP/Summer schools Master students. The project wanted also to offer the students a new educational and pedagogical tool: a "Learning Management System" (LMS). This is an e-learning collaborative platform for exchanges between teachers and students with new pedagogical resources (file course supports, videos, papers, links to websites, …) in order to complete the courses and to create an interaction between the teachers, the students and the professionals and used as a discussion forum, to submit comprehension tests or evaluations, to hand in a paper, or to organize activities for collaborative work. This new way of open and flexible learning, providing training and support to the students, should increase the virtual mobility and develop the educational resources in the ICT field.

3) Building a mutualized Master pathway program between the OENOBIO consortium partners by using the LMS. No harmonized European program in organic vine and wine production was existing. In this context, the five partners had initially decided to build a short Intensive Study Programs offering specific courses for advanced Bachelor students/Master/PhD students in this field in view of their future professional activities.

4) Progressively opening the ISP/summer schools and LMS to the socio-professional sector to support Life Long Learning.

Our project can be qualified of precursor, innovative and well adapted and designed because of the COVID-19 pandemic situation.

More specifically our 3 international conferences on organic vines and wines have developed different concepts: -Progress and challenges of organic viticulture and winemaking" in Bucharest 2019, -Organic viticulture facing climate change. New challenges in organic wine production and marketing in Geisenheim 2020, -Organic vines and wine advancement and challenges in Bordeaux 2021.

Our 3 summer schools in presential (Geisenheim), distancing (Tarragona) and hybrid format (Torino) validate the concept of a new educational and pedagogical tool with an adapted Learning Management System, completed with wineries and tasting visits.

The mutualized Master pathway program between the OENOBIO consortium partners was finalized with 8 teaching units: -Definition Concept Conversion; -Legislation and certification; -Winegrape Production; -Table Grape Viticulture; -Composition derivate / Sustainability and safety; -Microbiology, -Oenological Practices, -Winemaking- Ageing; -Sensory analyses /Promotion Economy; -Internship Professional or Research. It needs now to be formalized in an agreement for classes' deliveries to students or professional in demand of knowledge and competencies acquisition on organic vines and wines production and conversion.

Keywords: organic vine and wine, international, master, oenologists cooperation

ALTERNATIVES TO COPPER IN ORGANIC VITICULTURE: CAN WE TAKE ADVANTAGE OF PLANT DEFENSE MECHANISMS?

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Abstract

In conventional agriculture and in organic systems, copper treatments represent a major method of grapevine protection, particularly to prevent downy mildew. Unfortunately, its use leads to adverse effects on the environment and biodiversity and emergence of copper-resistant strains. In consequence there is a growing awareness of the need to limit and even more to stop its usage. In order to achieve this goal, the main challenge is thus to propose alternative strategies to control plant diseases. Among these alternatives, there are the use of resistant varieties, biocontrol agents, plant defense stimulators (PDS) or biopesticides. The research projects that we developed took advantage of plant defense mechanisms and focused on the use of PDS and biopesticides.

Regarding PDS, we have investigated the ability to confer grapevine protection of different elicitors (phytohormones: methyl jasmonate, an analog of salicylic acid (benzothiadiazole), ethylene, microbial extracts originating from *Botrytis cinerea* and, phosphonates) against different major grapevine pathogens, as downy mildew. For that, we used different models (cell cultures, foliar cuttings and grapevines of vineyard) and carried out experiments to evaluate the level of protection and to characterize plant responses at different levels (gene expression and, primary and secondary metabolites). About biopesticides, stilbenes (polyphenols) are well-known for their antimicrobial activities. For that reason, we studied the oomycidal capacities of plant extracts enriched in stilbenes, as grapevine, pine and picea. The extracts were made from co-products, for their valorization, and obtained by green extraction approaches.

Results showed that PDS can control grapevine pathogens but their effectiveness was partial and different depending on their nature and the targeted pathogen. This conferred protection was in part due to the modulation of defense related genes as the up-regulation of genes coding for PR proteins and enzymes involved in the phenylpropanoid pathway. In addition, the production of some stilbenes, such as resveratrol and ε-viniferin which are the grapevine phytoalexins, was enhanced without adversely impacting the anthocyanins biosynthesis. Nevertheless, there is a negative impact of PDS on the primary metabolism, particularly on sugars and again differently according to the studied PDS. Moreover, considering methyl jasmonate, we have determined some of its early players in the transmission pathway as the requirement of calcium flux from extracellular medium. Concerning biopesticides, the protective capacities of grapevine, pine and picea stilbenes-enriched co-products were observed. The disease reduction reached 60 and 25% for pathogen attack frequency and, 85 and 60% for infected leaf surface, for greenhouse and vineyard, respectively. Grapevine extracts were particularly enriched in resveratrol, ε-viniferin, hopeaphenol and r2-viniferin. The oligomerized forms were noted to be the most active molecules against downy mildew causal agent.

The observed protection capacities of PDS and biopesticides against downy mildew confirm the potential of these alternative methods for the biocontrol of pathogens in vineyard. We can expect their use in the future in association with other eco-friendly strategies.

Keywords: plant protection, stilbenes, elicitors, biopesticides, downy mildew, *Vitis vinifera*

DEVELOPMENT OF ORGANIC VITI-VINICULTURE IN SPAIN: HISTORY AND FUTURE.

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Abstract

Organic wines start legally in Spain in 1989 with the creation of the category "Agricultura Ecologica" (Organic agriculture) by the administration. Nevertheless, since the end of seventies some cellars started to produce organic wines without any regulation, in the Penedes area. The regulations were subsequently adapted to European rules in the nineties and the Spanish government translated the responsibility to the regions, so nowadays the certification is done by about 30 bodies, some of them public but also private companies. Moreover, some viticultural areas like Penedes AOC or Cava AOC are promoting as compulsory the organic production for some their categories of wine.

The world areas of organic wine production are mainly located in Europe; three countries take 80% of the surface, biggest is Spain, second France and third Italy. Anyway, by volume the biggest production is in Italy, France, and Spain. Even it's only around the 3% of the total world production of wine, it increases every year, and it is a clear trend along the world, also in the non-European producers.

The main reason to this big Spanish share in the organic wines is the climate, as Spain is one of the main players in organic agriculture, and wine it is only 5% of all this surface. Climate change has also reduced some pest pressure, specially related to botrytis cinerea, helping the organic vineyard production. The growing of this stile of wines started in 2007 and in 12 years the surface has increased by 4 times. The main area of production in Spain is Castilla-La Mancha, with only 13% of the surface, so with a big growing potential. The area with more cellars is Catalunya, with 33% of its vineyard surface under organic rules. Valencia has also 22% and on the contrary the Atlantic areas, as Galicia has a very short share.

Future of organic wines in Spain has a clear tendency of growing, as along the world. Climate change could help even in some areas the lack pluviometry could be a big concern. It is also related to a world tendency of drink less but better. Some other crops related to organic production are increasing, as natural wines, biodynamic and wines issued from regenerative agriculture, but nowadays it is a short portion of the cake. Anyway, it is interesting to be aware of these movements as some premium wines move to them.

EFFECT OF MACERATION TIME ON THE RED WINES PRODUCED FROM ORGANIC GRAPES FROM PLANTATIONS WITH DIFFERENT YIELDS

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Abstract

For red wines, the phenolic composition determines to a large extent the overall quality. Some red varieties of grapes naturally accumulate higher phenol concentrations, but others - such as the Romanian variety Feteasca neagra – are less fortunate in this regard and could benefit from some technological interventions. In case of organic wine, however, only few interventions are allowed. Thus, the present study focuses on easily acceptable strategies that may help improve the polyphenol composition of organic red wines of Feteasca neagra. To optimize phenolic concentration in grapes, reduction of yield was performed by pruning, the variants tested being yields of 20, 28 and 36 buds/vine. During winemaking, the grapes from the three yield variants were macerated for either 8 or 16 days. The phenolic profiles of wines thus obtained were determined by HPLC. The main anthocyanidins, such as cyanidin, malvidin, petunidin, delphinidin and peonidin, and some of the acylated and coumaroylated derivatives were quantitatively determined. Other phenolic compounds, of various classes, were also determined, including p-benzoic, p-coumaric, gallic and ferulic acid, catechin, epicatechin, quercetin, myricetin and t-resveratrol. The phenolic quality of the organic wines of this variety depended highly on the vintage, but it was observed that in the less favourable years, yield reduction and/or the extension of skin maceration duration was especially beneficial. Simultaneous application of yield reduction and longer maceration on skins led to the best results, irrespective of the vintage.

Keywords*:* green pruning; maceration-fermentation; organic grapes; Fetească neagră

REGULATION OF ORGANIC WINEMAKING AND DESIRE TO REDUCE INPUTS IN OENOLOGY

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Abstract

Organic wine regulation has now nine years old. The aimed of European commission was to build a realistic regulation based on the philosophy and requirements of Organic production. For that they take the general wine regulation and analyze each input and technic considering, impact on environment, health, modification of the wine nature… and to not created major technical dead end for organic winemakers. The Principe is not to recommend the use of all the authorized list of input or technic but to have tools available for organic wine maker in case of need.

This regulation evolved since it is first application in 2012 since it is strongly link to the general wine regulation. The organic wine sector work on many research programs (CASDAR levain Bio, European program WILDWINE…) and participate in the development of new input corresponding to their need as if it was the case for potatoes thinning agent. When a new input or technic is developed, the organic sector and regulator have to analyze it to see if there is a need and if it is corresponding to the organic philosophy.

One of the recent works of European commission was to take in account the evolution that was done in the general wine regulation RE 2019 934. This new regulation was a deep work and modification done by The International Organization of Vine and Wine OIV and the European commission have to work on corresponding between the two regulations since they are link.

The organic wine maker adopted this new regulation and generally go further in the reduction of the use of input and technic. With a consumer will to go to more natural product, we see the development of wine with indigenous fermentation, wine without SO2 and new private chart and association like the association of wines "Méthode Nature" in France

Keywords: Organic regulation, reduction of imput,

MICROBIOLOGY MANAGEMENT IN ORGANIC WINE PRODUCTION

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Abstract

The development of organic wine production has sparked new interest in wine microorganisms, their origin, role and control in organic winemaking. The winegrowers were particularly interested in "wild" or "indigenous" yeasts and bacteria, associated with the concepts of terroir or complexity of wines. It has become more and more frequent to carry out spontaneous fermentations with these indigenous yeasts and bacteria, despite the difficulties that this can bring. In addition, the decrease in the use of sulfur dioxide in organic wine making has reduced the ability to control spoilage microorganisms such as the yeast Brettanomyces bruxellensis, and favored the appearance of new spoilages, such as "mousy taint", in particular in wines produced without added SO2. Scientific research has mobilized to provide knowledge and technical solutions to these new challenges. This conference will provide an overview of the knowledge acquired on the management of microorganisms in the context of organic winemaking. It will address more precisely: the diversity and specificity of indigenous microorganisms, the technological solutions proposed to better control the fermentations carried out with indigenous yeasts and bacteria, such as the use of "pieds de cuve", and the use of bioprotection agents.

Keywords: Wine microorganisms, indigenous yeasts, spontaneous fermentation, "pieds-de-cuve", bioprotection

ORGANIC WINE MARKET IN FRANCE AND EXPORT

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Abstract

Production of organic wines is increasing in Europe and notably in France with now 14% of its wine production. Even if wine consumption is decreasing, demand of organic wine never stops to grow. Consumers are asking for more and more organic wines and the demand increased of 20% since 3 years. Will the offer be able to meet the demand? The organic wine sector needs to be prepared: producers and marketers have to work together.

In 2019, 57% of French organic wines were sold in France, the rest was exported. The main three markets of importation in 2017 were Germany, United Kingdom and Sweden. It is easy to export between Europe countries thanks to the same organic regulation. Outside Europe, the main markets are the United States and Japan where can exist equivalences of regulation.

In France, wine producers sell their wines using all distribution channels: direct sale, wine shops, organic stores, supermarkets, traders, export… Each circuit has specificities and wine producer has to choose according to his capacities and wishes. Today, a winemaker cannot only produce wine; he must also be a sales professional by working as seriously, vine, wine, and sale.

Keywords: production, consumption, organic wine market, export, distribution channel

OENOBIO is a multi-level project at European level, aimed at students and long life learning actors in the domain of Oenology, with special focus on the production of organic vine and wine, with 3 main objectives:

1. Developing annual **Intensive Study Programmes and Conferences** with update knowledge concerning orgqnic vine qnd wine field.
2. Creating a **Learning Management System (LMS)** on organic vine and wine for students at Master level.
3. Building a joint **Master programme** in the field of organic vine and wine by the OENOBIO consortium partners.

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