

Analysis of regulatory framework and standards applied to organic wine-making in Europe

Jonis, M.¹ ; Monnier MC ; Schmid, O² ; Micheloni, C³ ; Hofmann, U⁴,

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Abstract

Because wines (of grapes) were excluded from the scope of EC Regulation 2092/91 (annex 6, concerning processing organic food, does not apply to wine) concerning organic farming, up till now there is no legal definition for organic wines at European level, but only rules for organic grapes production. This project: ORWINE, is aiming to help the UE commission to develop a legislative framework for the transformation of organic grapes into organic wine. This would allow replacing the current definition "wine made from organically grown grapes" by "organic wines". One of the first tasks of this project is a description of the regulatory framework applied to EU organic wine-making. Legal public and private standards for wine processing are taken in consideration and compared, in order to see convergences and divergences between different standards and identify the main important issues that need to be dealt with by a future European regulation for organic wines making.

Introduction

This presentation is based on work done in the ORWINE project, a European Research project focused on organic wine processing. Main objective of this project is to formulate proposals for future common regulation on organic wine at European level. Organic grapes come from vineyards conducted under organic farming methods, as defined also at European level, by the EC Regulation 2092/91. Because wine was excluded of the scope of this regulation (annex 6, concerning processing organic food), there is till now no legal statute for organic wines at European level, but the only allowed definition is "wines coming from organic grapes". It results that the sole overall rules to be applied to wines processed from organic grapes are those contained in the EC Regulations 1493/1999 (annexes 4 and 5) and 1622/2000, which define the oenological practices and treatments allowed for wines in Europe.

Nevertheless, organic vine-growers have developed specific approaches for processing their wines in a way they consider in compliance with organic farming

¹ ITAB. Institut Technique de l'Agriculture Biologique, 149 rue de Bercy, F-75 595 Paris cedex 12, France. E-mail : monique.jonis@itab.asso.fr. Website : www.itab.asso.fr

² FIBL. Research Institute of Organic Agriculture, Ackerstrasse, CH-5070 Frick, E-Mail otto.schmid@fibl.org. Website : www.fibl.org

³ AIAB. Associazione Italiana Agricoltura Biologica, Via Piave 14, I-00187 Roma. E-mail : c.micheloni@aiab.it. Website : www.aiab.it

⁴ ECOVIN. Federal Association of Organic Wine producers. Praelat-Werthlannstr.37 D-65366 Gesenheim. E-mail: uwe@eco-consult.net. Website : www.ecovin.de

principles. These private initiatives in the producing countries have taken the format of standards or charters belonging to producers groups, organic farming associations connected with certifiers, or national platforms. They are more restrictive than the legal requirements for wine, with limitations concerning the use of additives and technical processes at all steps of wine processing, from grapes picking to wine bottling and storage. In the consuming European countries, some limitations have also been introduced by organic certification bodies, particularly concerning the SO₂ rate in wine at consumption (UK, ND). At international level, organic wine processing is included in the IFOAM Basic Standards (norms for organic production and processing) and by the *Codex Alimentarius*, which are standards for standards. As in Europe, there are private standards in most producing third countries. Moreover, the new American federal regulation for organic farming (NOP) includes wine, as do the Japanese Agricultural Standards (JAS).

Methodology

The analysis of the legislative and regulatory framework for wine processing has included:

- the General regulation for wine (European Wine regulation and the OIV prescriptions);
- the International regulation and guidelines on organic farming, concerning also grapes and wines;
- National, regional and private standards on organic wine making: in European and non European countries;

Experts from all European producing countries have also been interviewed, in order to understand the real level of influence of each standard in its territory and the problems eventually met by the producers.

Results and discussion

As a result of the analysis, a comparative matrix has been elaborated, gathering oenological practices coded by the standards. The practices and substances listed as allowed or forbidden in each standard/regulation have been clustered in the following areas:

1. Physical practices allowed by all standards

Processing method (allowed by European wine regulation)	Allowed in organic wine standards; restrictions
Aeration or addition of oxygen	Generally allowed. Not mentioned in some standards
Temperature management	Heating and cooling allowed. General prescriptions for musts and wines
Centrifugation and filtration, with or without inert agent	- Filtration methods allowed by all standards. - All inert agents generally allowed, - Sterilizing filtration not clearly considered
Air protection using inert gazes (CO ₂ , N ₂ , Ar)	Allowed by all standards : argon not mentioned by the German and Demeter Austria standards

2. Additives allowed by all standards

Function	Allowed	Restrictions
N nutrition of yeasts	N salts,	Nature of N salts
Sulphitation	SO ₂ gas	Doses differed according to different standards and wine types
Enrichment	Sugar, Rectified Concentrated Musts (RCM), Concentrated Must (CM)	Organic enrichment preferred Sugar not allowed in Italy, Spain, Greece, South of France... (Zone C)
Acidification /	Tartaric acid	Conditions of use, natural origin Not allowed in Zone A and B (Germany, Austria, Alsace etc.)
Deacidification	Potassium carbonate - bicarbonate, Calcium carbonate, potassium tartrate, homogenous preparation of tataric acid and calcium carbonate	Condition of use Not allowed in Zone C II and III
Fermentation	Dry selected yeasts and selected lactic bacteria	Not allowed by Demeter- Austria. Non GM origin
Clarification	Isinglass, casein, ovalbumin, bentonite, silicon dioxide, enzymes	Pectinolytic enzymes not clearly specified in all cases
	Citric acid, L-ascorbic acid	Non GM origin
	Oenological charcoal	Treatment of white wines

3. Additives and practices generally forbidden

- Genetically modified micro-organisms (yeasts, bacteria) or inputs derived from are totally excluded as in the general organic regulation;
- PVPP (E1202): to reduce tannin content in the wine and correct some color defaults;
- Lysozyme E1105 (to control lactic bacteria activity and reduce SO₂ needs);
- Dimethyl dicarbonate DMDC: to help microbial stabilization;
- Ionization and use of ion exchange materials, as in the general organic food regulation;
- Sorbic acid and potassium sorbate except for few specific Spanish wines.

4. Main practices and additives for which there are differences between the standards

- Sulphitation: use of K metabisulphite and K bisulphite;
- Correction of N deficiency in the musts: principle of correction and type of additives, with different positions on N salts use or other agents stimulating the yeasts growth;
- Deacidification: nature of substances to be used for;
- Clarification: use of gelatin, betaglucanases enzymes, tannins and potassium caseinates;
- Reduction of taste defaults: use of Copper sulphate
- Alternative practices to Sulphitation for unstable sweet wines: physical treatments like flash pasteurization and sterilizing filtration.

5. Preservation of wines from organic grapes, use of SO₂

Sulphites are naturally produced by the yeasts during the wine processing. The addition of SO₂ is traditionally considered as an efficient method to protect and

preserve the wine at different stages of its elaboration. However sulphites use in food processing is restricted because of their potential negative effects on health, both of processors and of some categories of consumers. Sulphitation is allowed by all the standards for organic wine processing, but with restrictions compared to the wine regulation. The European Wine Regulation fixes total SO₂ maximum doses in the end product. They take into account the wine types, and the presence of residual sugars. The table below shows that the allowed doses of total SO₂ used during the wine processing are, in the case of all private standards for organic wines, lower than their respective European wine regulation. These reductions vary for red, white and rosé wines. The differences are essentially explained by:

- the well-known relationships between SO₂ addition needs and wine parameters as:
 - acidity of the white wines;
 - tannins content of the red wines;
 - sugar content;
- climatic constraints which have an influence on the sanitary quality of the grapes.

Tab. Maximum levels of sulphur dioxide for organic wines in Europe in comparison with EU regulation 1493/99 (in mg/l of SO₂ total rates)

Wine types	CEE viti-vini	France FNIVAB	Spain National Standards	Greece DIO	Italy A.I.A.B.	Germany ECOVIN	Switzerland BIO SUISSE
Dry red wines < 5g/l sugar	Max: 160 (+40)	Max :100	Max: 120 (+30)	Max: 60	Max : 60	R: 100 Max:160	Max:120
Dry white / rosé wines <5g/l sugar	Maxi: 210 (+40)	Max :120	Max: 120 (+30)	Max: 80	Max : 80	R. 100 Max :210	Max :120
Dry sparkling wines	Max:150 to 235 (+40)	Max :100	Maxi : 120	R. <20 Max: 60	R.<20 Max: 60	Max :150	
Semi-dry sparkling wines >15g/l sugar	Max:185 to 235 (+40)	Max :150		R. <20 Max: 60	R.<20 Max: 60		
Sweet red wines >5g/l sugar	Max: 210 (+40)	Max :150	Max: 160		R.<20 Max: 120	R. <200 Max : 210	Max :120
Sweet white/ rosé wines >5g /l sugar	Max: 260 (+40)	Max :210	Max: 160		R.<20 Max: 120	R. <200 Maxi :260	Max:120
Sweet wines	With botrytis : 400; without: 300 to 400	With Botrytis: 360; Without: 250		R.<20 Max: 120	R.<20 Max: 120	With Botrytis: 400; Without: 300	Max: 120
VDN / Vins de Liqueur	Max: 200	Max: 100	Max: 120		R. <20 Max: 120		

R. : recommended

In third countries, allowed SO₂ levels take also into account the types of wines and climatic conditions, except in the case of the American NOP: an absolute limitation of 100 mg/l of total SO₂ is given for all types of wines. The most relevant indicator is the total SO₂ level, because of the reversibility of free forms. Nevertheless, some standards give limits in free SO₂

Conclusions

Considering the main objective of the ORWINE project, which is to establish a basis for a future European regulation concerning organic wines, issues related to the relevance of current standards with regard to organic processing food principles and evolution of the general framework of the wine production at international level have been examined. Several points, concerning all the process of wine production, have been considered. The three main areas are:

- SO₂ limits, both on quantitative and qualitative aspects;
- Regulation of fermentations, with use of N-salts nutrients, in a context of deep climatic changes which affect the wine producing areas;
- Enrichment: because of a coming change in general regulation concerning the exclusion of sugar, what are the possibilities in the future for enrichment of organic wines? Will concentrated rectified musts be acceptable and to which conditions?

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