RESOLUTION OENO 6/95

ENZYMATIC PREPARATIONS

THE GENERAL ASSEMBLY;

IN VIEW of article 5, paragraph 4 of the International Convention for the Unification of Methods of Analysis and Appreciation of Wines of 13 October 1954,

ON THE PROPOSAL of the Sub-Commission on Unification of Methods of Analysis and Appreciation of Wines,

DECIDES : to supplement the International Oenological Codex with the monograph « General Specifications for Enzyme Preparations ». They replace the general prescriptions on enzyme preparations exploitable in « grape » technology.

The specifications formulated below concern all enzyme preparations likely to be used in various operations applied to grapes or their derivatives.

They are based on those issued by the "Joint FAO/WHO Expert Committee on Food Additives, 35th Session, Rome 29th May - 7th June 1989" and published in 1990 in the FAO Food and Nutrition Paper No 49 "Specifications for Identity and Purity of Certain Food Additives. General Specifications for Enzyme Preparations Used in Food Processing".

1. General Points

Enzyme preparations can be produced from animal and vegetable tissues or from microorganisms.

When the situation requires a synergy between different enzymatic activities, such as pectinases, cellulases and hemicellulases, mixtures of preparations derived from different sources may be used. These preparations can contain one or several active components, as well as supports, diluants, preservatives,antioxidants or other substances compatible with sound manufacturing processes. In some cases they can contain cells or fragments of cells. Moreover, they may be solid or liquid.

Active substances can also be immobilised on a support.

2. Permitted enzyme preparations

All enzyme preparations with demonstrable practical application and which fulfil the conditions and criteria above are acceptable for the treatment of grapes and their

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derivatives.

The enzyme preparations used must not contain substances, micro-organisms or enzyme activity capable of:

- endangering human health;
- endangering the quality of the products;
- leading to the formation of undesirable products;
- causing or facilitating a fraud.

3. Enzyme activities

Enzyme preparations contain numerous activities. Apart from the main enzyme for which practical application has been demonstrated, secondary enzyme activities are only tolerated within the technological limits and constraints of the production of enzyme preparations.

Enzyme activity contained in a preparation responding to the technological need described is expressed in units of activity per unit weight of preparation. These units represent the enzyme activity on which the preparation is standardized.

4. Enzyme sources and production environments

Enzyme sources and fermentation environments must not leave residues harmful to health in enzymatic preparations. In the case of micro-organisms, a safety study must be conducted in order to ensure that an enzyme preparation produced by a given species of micro-organism (for example. Aspergillus niger) does not present a health risk. This study can be carried out based on the principles for the use of enzymes in food published by the Scientific Committee for Food of the European Union, or other equivalent bodies.

The animal tissues used in the preparation of enzymes must comply with the requirements fixed by the official control authorities. They must be treated in accordance with sound hygiene and good manufacturing practices.

The bacterial strains used in the production of enzymatic preparations must be non-pathogenic, non-toxinogenic and genetically stable. The techniques utilised must comply with sound manufacturing practices.

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5. Supports, diluants, preservatives or other additives

Enzyme preparations can only be diluted in substances conforming to the regulations currently in force in different countries for the treatment of grapes and their derivatives.

In the case of immobilised enzymes, the supports used must comply with the standards on materials in contact with foodstuffs. For this last type of preparation, the quantity of the components of the support used which are likely to diffuse into the must or the wine should be determined and indicated on the label of the enzyme preparation.

The presence of preservatives will only be tolerated in commercial preparations in liquid form. Only preservatives agents authorised for foodstuffs are acceptable and their level must be shown on the label of the enzyme preparation. Their levels in treated wine must not exceed the maximum authorised or tolerated because of the composition of wine.

6. Hygiene

Enzyme preparations must be produced in accordance with sound manufacturing practices and must not cause any significant increase in the content of micro-organisms of treated products.

7. Contaminants

Enzymatic preparations must conform to the JECFA specifications concerning their chemical and microbiological purity. These specifications are as follows:

7.1. Chemical contaminants

- Arsenic: max. 3ppm
- Lead: max. 10ppm
- Heavy Metals:max. 40ppm

7.2. Microbiological contaminants

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- Salmonella: absence confirmed in a 25g sample
- Coliforms: max. 30 per g of preparation
- Escherichia Coli: absence confirmed in a 25g sample
- TBC: max. 5x 104 per g of preparation

The enzyme preparations must not contain antibiotic activity, detectable quantities of aflatoxin B1, ochratoxin A, sterigmacystin, T-2 toxins or zearalenones.

8. Compulsory technical information to be provided by the manufacturer.

Each type of enzyme preparation must be defined by a technical specification. This must contain at the minimum the following information:

- Nature of the preparation (for example pectolytic enzymes)
- Origin (for example Aspergillus niger)
- Areas and modes of application
- Activity and stability of the preparation
- Types of reactions catalysed by principal enzyme activities.
- Principal enzyme activities with IUB number (for example Tannase 3.1.1.20)
- Secondary enzyme activities with, if possible, IUB number.
- Types of supports, diluants, preservatives or additives used as well as their contents.

This information must be supplied at the request of users or competent authorities. 9. Further information will be proposed for each enzyme.

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