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Publication of the 3rd edition of the OIV ampelographic descriptors

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Abstract. The description of varieties and species of *Vitis* has long been the subject of studies by specialists for a long time, who have led the OIV to publish in 1983 the "Code of descriptive characteristics of the varieties and species of *Vitis*". In 2016, the OIV started a new process of revision, which allowed to (i) confirm 70 pre-existent descriptors; (ii) modify 79 pre-existent descriptors; (iii) and establish 27 new descriptors. The amendments have mainly concerned the reference varieties, the levels of expression and the definitions of the modified descriptors. The new descriptors are related to morphologic characteristics, to the resistance to biotic and abiotic factors, and to further SSR markers useful for grapevine identification. The revision process is completed by updating the introduction of the previous edition and by approving three new annexes. Furthermore, a new format is applied to the 176 ampelographic descriptors, by including Russian language among the other OIV official languages, and by replacing old drawings with modern illustrations. Finally, the launch of the new "Ampelographic descriptor database" on the OIV website, enhance the free access to the descriptors and their implementation by the OIV ampelographers.

1. Background and objective

Ampelography, as its etymology indicates, aims to describe grapevines. It applies to all taxonomic levels of the botanical family *Vitaceae* and more particularly to those of the genus *Vitis* which is the only one whose cultivated individuals have agricultural importance.

Ampelographic characterization in the broad sense requires describing the morphology, agronomic behaviour, technological potential and genetic aptitudes of the plant material.

All these descriptive data aim on the one hand to identify the plant material and on the other hand to advise its use, in a vitivinicultural sector where the cultivated varieties play a preponderant role in the typicality and quality of the products. As a result, the users of ampelographic data are various: winegrowers, nurserymen, viticultural technicians, breeders, hybridizers, curators of genetic resources, researchers, administrations, etc.

In this context, ampelography represents a key discipline in viticulture, and we understand why the OIV, from its beginnings, took it into strong consideration.

Thus, as early as 1938 (resolution C 1/38-VIT), the OIV initiated a preliminary action to harmonize ampelographic descriptors that pre-existed in parallel in several European countries. The result of this first international synthesis effort, although already very accomplished, was not published in a formalized independent guide; it can however be consulted *in extenso* in the Bulletin of the OIV No. 235 of September 1950 [1]. In this "Plan for the description of grapevines of the genus *Vitis*", 82 essentially morphological descriptors are listed (codified), each with a controlled vocabulary (not codified) in French, Italian and German. The operational objective of this work was to adopt a "presentation plan for each varietal fascicle" of the OIV's major "International Ampelographic Register" project, which was finally published in five volumes, according to these guidelines, between 1961 and 1972 [2].

In 1983, a new version of the "Code of descriptive characteristics of the varieties and species of *Vitis*" was officially published (i.e. "1st edition") in French, German, English and Spanish [3]. The objectives remained the same but in the preface, the contributors emphasized the importance of a good description of genetic resource collections and new varieties with a view to their protection as well as a harmonized observation model, taking into account the correspondence of the OIV codes with those of other international organizations in charge of cultivated plants: IPBGR (International Board for Plant Genetic Resources) and UPOV (International Union for the Protection of New Varieties of Plants). The 128 descriptors (including 34 concerning agronomic aptitudes) making up this model presented a definition, illustrations, levels of expression (codified) associated with reference control varieties, and the correspondences with the IPBGR and UPOV. A list of 21 priority descriptors for identification was defined.

In 1997, a third updated and completed version of 147 descriptors was established, but not formally published. It served as a working basis, from 2002, for the official publication in 2007 (corrected in 2009) of a fourth consolidated version (i.e. "2nd edition") of the "List of OIV descriptors for *Vitis* varieties and species" [4], integrating the Italian language. This document contained 149 descriptors including, for the first time, 18 concerning leaf ampelometry, 2 isozymes and 6 SSR genetic markers, intended to improve identification capabilities. Another novelty was the adoption and adaptation of the FAO/IPGRI/EURISCO "Multi-crop passport descriptors" (MCPD) to the grapevine (37 descriptors) intended to facilitate the exchange and use of genetic resources between collections, breeders and researchers. After several years of using this technical standard, a desire gradually emerged to update, complete and modernize this international reference document.

2. Method of work

In 2016, an *ad hoc* group of OIV ampelography experts (GENET group) was appointed to work on this new 3rd edition following five consecutive consultation cycles. During each cycle, based on the results and principles of the 2nd edition, the proposals (i.e. *status quo* / modification / addition) of the experts from the countries involved were discussed by the representatives of the other countries in order to reach a consensual validation of each descriptor. It should be noted that the working group, aware that the 2nd edition of the descriptors had already been widely used in scientific publications, specialized works or computerized databases, ensured that the modifications of descriptors were as parsimonious and justified as possible. During this work, the usefulness of new annexes emerged to better frame the whole of the new edition and facilitate its practical use. Based on this important preparatory revision work, the 21st General Assembly of the OIV, meeting in Jerez (Spain) in 2023, adopted resolution OIV-VITI 702-2023 [5], aiming at the publication of the 3rd edition of the "OIV descriptors for *Vitis* varieties and species".

3. Results

3.1. Updating descriptors

3.1.1. Unmodified descriptors

Seventy pre-existing descriptors were kept identical since they were satisfactory in terms of title, definition, levels and scale of expression and control varieties (e.g. OIV 067). Only the illustrations were modernized.

3.1.2. Modified descriptors

Seventy nine pre-existing descriptors were modified. The improvements mainly concerned the control varieties given for each level of expression which were completed and homogenized (e.g. OIV 351). This notion of reference variety, present since the 1st edition, is indeed important because i) it concretely illustrates each level of expression of each descriptor and ii) it allows self-learning by users. This is why in this 3rd edition, the contributors were particularly attentive to covering all occurrences with generally two grapevines (i.e. varieties with wine or table fruits, rootstocks, wild species of *Vitis*), exemplary (i.e. illustrating the characteristic in a stable and unambiguous way), reference (i.e. well-known and most widely distributed in vineyards and collections) and easily accessible (i.e. public, royalty-free). Further improvements have been made to the expression level scales by extending (e.g. OIV 103) or on the contrary restricting (e.g. OIV 152) the number of levels to better correspond to the variability observable in practice. Finally, some definitions or titles of descriptors have been clarified (e.g. OIV 452).

3.1.3. New descriptors

Twenty seven new descriptors have been added to the reference, 12 concerning the resistance to biotic factors (e.g. OIV 468), 4 the resistance to abiotic factors (e.g. OIV

406), 8 organ morphology (e.g. OIV 224) and 3 genetic markers (e.g. OIV 808).

3.2 Additional information

The following parts of the previous edition have been taken over and, where appropriate, updated:

- 1) The preface of the 3rd edition describing the work carried out and listing the contributors, as well as the prefaces of the 2nd and 1st editions for the record.
- 2) The general remarks explaining the principles of operation and use of the descriptors: types of characters, codification, rating scales, control varieties and observation conditions.
- 3) The FAO/IPGRI/EURISCO Multi-crop passport descriptors (MCPD) adapted to the grapevine.
- 4) The complete list of the 176 OIV descriptors.
- 5) A table grouping the descriptors by organ and theme.
- 6) A minimum list of 14 priority descriptors for morphological identification.

Three new annexes to the descriptors have been added to facilitate their use:

- 7) A table of correspondence between the codifications of the OIV (classic numbering), UPOV (new version currently being published) and Alliance Bioversity CIAT (previously IBPGR, IPGRI and Bioversity International). In addition to these different codes, a new optional "universal decimal classification" (UDC) is proposed, on a logical and systematic principle, with the aim of better integration into computer systems and scientific work.
- 8) A list of reference control varieties, with their main international synonyms and the descriptors in which they are cited.
- 9) A list of grapevine diseases and pests covered in the reference system, with their synonyms.

4. Editing

4.1. Languages

As with previous versions, the texts of the 176 descriptors are published in the official languages of the OIV: French, Spanish, English, Italian, German and for the first time Russian. Furthermore, although not yet an official language of the organisation, it is planned to add Arabic soon, based on the translation of the 2nd edition already carried out by Mr Fethi Askri.

4.2. Illustrations

For the descriptors relating to the morphology of the organs, the old black-and-white drawings have been almost entirely replaced by modern colour illustrations (vector drawings, e.g. Figure 1). These were produced by Michaël Belluau as part of the French project « PlantGrape » (https://www.plantgrape.fr).

Figure 1. Example of a new illustration for the descriptor OIV 051 Young leaf, colour of the upper side of the blade.

4.3. Downloadable document in PDF format

Like the previous edition, the entire third multilingual edition of the descriptors, including the introduction, the descriptive sheets and the annexes, will be available in a single document in pdf format, according to a new layout model, freely downloadable from the OIV website, under “Standards and technical documents”.

4.4. Database available on the OIV website

As part of the “Facilitating the digital transition of the sector” axis of the OIV strategic plan 2020-2024, the creation of a new “Ampelographic descriptor database” on the OIV website represents a significant innovation compared to previous editions, for the dissemination and use of this reference standard. Freely available at https://www.oiv.int/what-we-do/amp/search, this online format offers users several features that obviously cannot be deployed on a PDF document, including:

- Choice of consultation language.
- Sorting of descriptors by categories and subcategories (e.g. organ, phenology, resistance, genetic marker).
- Photograph library, which will be progressively provided by experts from several countries, to illustrate the descriptive characteristics, in addition to the drawings.
- Download of lists (descriptors, annexes) as table forms to facilitate their use and their integration into different information systems.

5. References

1. OIV, Bulletin de l’OIV 23, 235 (1950).
2. OIV, Registre Ampélographique International, 5 volumes (1961-1972).
3. OIV, Code of Descriptive Characteristics of the Varieties and Species of Vitis (1983).
4. OIV, 2nd edition of the List of OIV Descriptors for Vitis Varieties and Species (2007).
5. OIV, Resolution OIV-VITI 702-2023 (2023).