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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

TECHNICAL WORKING PARTY FOR AGRICULTURAL CROPS

Thirty-Ninth Session
Osijek, Croatia, May 24 to 28, 2010

REVISION OF DOCUMENT TGP/12/1:
DISEASE NOMENCLATURE AND DISEASE RESISTANCE CHARACTERISTICS

Document prepared by the Office of the Union

1. At its forty-fifth session, held in Geneva from March 30 to April 1, 2009, the Technical Committee (TC) considered a proposal made by Mr. Kees van Ettekoven (Netherlands) at the forty-second session of the Technical Working Party for Vegetables (TWV), held in Cracow, Poland, from June 23 to 27, 2008, concerning the nomenclature of disease resistance. The TC agreed to invite the TWV to propose whether to include a section on the nomenclature of disease resistance in document TGP/14 "Glossary of Technical, Botanical and Statistical Terms Used in UPOV Documents" or in a future revision of document TGP/12 "Special Characteristics".

2. At its forty-third session, held in Beijing, China, from April 20 to 24, 2009, the TWV considered documents TWV/43/13 "Nomenclature of Pathogens" and TWV/43/16 "Principles on the Use of Disease Resistance Characteristics in UPOV Test Guidelines" and concluded that the proposal should be presented to the TC and other Technical Working Parties (TWPs) for consideration for a possible future revision of document TGP/12/1 (document TGP/12/2). It also agreed that the states of expression for quantitative characteristics with three notes might be reviewed, if appropriate. Documents TWV/43/13 and TWV/43/16 are reproduced as Annexes I and II to this document, respectively.

3. At its forty-sixth session, held in Geneva from March 22 to 24, 2010, the TC agreed that the TWV should develop a proposal for a revision of document TGP/12/1 in order to provide guidance on the nomenclature and use of disease resistance characteristics, as set out in paragraphs 1 and 2, above.

[Annexes follow]

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TWV/43/13
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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

TECHNICAL WORKING PARTY FOR VEGETABLES

Forty-Third Session
Beijing, April 20 to 24, 2009

NOMENCLATURE OF PATHOGENS

Document prepared by the Office of the Union

4. At its forty-second session, held in Cracow, Poland, from June 23 to 27, 2008, the Technical Working Party for Vegetables (TWV) received the following proposal from Mr. Kees van Ettekoven (Netherlands) concerning the nomenclature of disease resistance:

> "In TGP/12, the principles on the use of disease resistance characteristics are given. Besides these principles there are other elements to consider when mentioning disease characteristics in UPOV guidelines:
>
> "1. The nomenclature of the pathogens
>
> "As in the plant kingdom, also in the field of pathogens the denomination of the subject is important in order to correctly identify the various diseases. As in the plant kingdom the names of pathogens sometimes change as a consequence of improved insight in the pathogen and its relation with other pathogens. The use of the proper name is therefore important. In principle, the UPOV Test Guidelines should follow the latest valid taxonomic views. This principle has two disadvantages: the UPOV Test Guidelines are not revised annually and in practice the users of the pathogen names may be familiar with the old name and not yet with the new name. In the ISF disease resistance coding working group, faced with the same problem, the following solution was introduced: a new

denomination is given in brackets behind the old name with the prefix 'new' for a period of 5 years. After 5 years, the situation is reversed: the new name is given with behind it in brackets the old name with the prefix 'old' for a further period of 5 years. After the latter period of five years, only the new name is given. It is proposed to follow the same principles in the UPOV Test Guidelines in order to avoid confusion and have maximum clarity.

"2. The use of abbreviations

"In practice, the scientific binomial for the pathogens is often replaced by a code. In the ISF disease resistance coding working group a system of codes was introduced to ensure uniformity in the use of these codes. The codes are logically derived from the names of the pathogens and can also be found on the ISF website: *www.worldseed.org*. It is proposed to introduce the disease codes in the UPOV guidelines.

"3. The nomenclature of races and strains

"As with the names and codes of the diseases, also the correct naming of the races and strains needs to be observed to avoid confusion. It is proposed to implement the race nomenclature developed by ISF in the UPOV Test Guidelines."

5. The TWV agreed that the proposal from Mr. van Ettekoven represented an appropriate means of managing the naming of disease resistances. It agreed that that approach should be incorporated in document TGP/12 "Special Characteristics" or TGP/7 "Development of Test Guidelines", and agreed that a decision on which should be postponed until its forty-third session. In the meantime, the TWV agreed that this development should not delay the adoption of TGP/12, because TGP/12 could be revised at a future date if necessary. The TWV agreed that, for its forty-third session, Mr. van Ettekoven should prepare draft guidance for inclusion in document TGP/12 or TGP/7 on the basis of his proposal, set out above, subject to the following:

(i) to include the names of the relevant pathogen naming organizations on which the names would be based;
(ii) to include an explanation that the old and new name should be kept with the appropriate code, e.g. *Oidium lycopersicum* (Ol) (now *Oidium neolycopersici* (On)); and
(iii) to explain that it would not be necessary to revise Test Guidelines in order to reflect changes in pathogen names.

6. At its forty-fifth session, held from March 30 to April 1, 2009, the TC agreed to invite the TWV to propose whether to include a section on the nomenclature of disease resistance in document TGP/14 "Glossary of Technical, Botanical and Statistical Terms Used in UPOV Documents" or in a future revision of document TGP/12.

7. At the forty-third session of the TWV, Mr. van Ettekoven will make a presentation on proposals for guidance on the naming of disease resistances.

[End of document]

[Annex II follows]

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TWV/43/16
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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

TECHNICAL WORKING PARTY FOR VEGETABLES

Forty-Third Session
Beijing, April 20 to 24, 2009

PRINCIPLES ON THE USE OF DISEASE RESISTANCE CHARACTERISTICS IN UPOV TEST GUIDELINES

Document prepared by an expert from the Netherlands

Introduction

8. The main principles on the use of disease resistance characteristics will be set out in document TGP/12 "Guidance on Certain Physiological Characteristics". In addition to these, the following details should be taken into consideration when drafting or applying UPOV Test Guidelines with disease resistance characteristics.

Nomenclature of the pathogens

9. The proper denomination of pathogens is important in order to correctly identify the various diseases. As in the plant kingdom, the names of pathogens sometimes change as a consequence of improved insight in the pathogen and its relation with other pathogens. In order to allow the user to follow these developments if needed, it is advised to include in the UPOV Test Guidelines a reference to the organization that is governing these taxonomic developments. In practice this mainly concerns the following internationally recognized organizations:

- the American Phytopathological Society (APS) for fungi,
- the International Committee for the Taxonomy of Plant Pathogenic Bacteria of the International Society of Plant Pathology (ISPP) for bacteria,
- CAB International Bioscience (formerly the International Mycological Institute, IMI) for fungi and bacteria,
- the International Committee for Taxonomy of Viruses (ICTV) for viruses.

Tracking changes

10. As with plant names, the average user of a pathogen name sometimes is familiar with the old name, but needs some time to adjust to the new names. This may cause confusion if new names are not yet recognized as such. When faced with this problem, the International Seed Federation (ISF) disease resistance coding working group, a group of phytopathologists from breeding companies, GEVES (France) and Naktuinbouw (Netherlands), introduced the following solution:

> *A new denomination is given in brackets behind the old name with the prefix 'new' for a period of 5 years. After 5 years, the situation is reversed: the new name is given with behind it in brackets the old name with the prefix 'old' for a further period of 5 years. After the latter period of five years, only the new name is given.*

11. As UPOV Test Guidelines are only revised with long intervals, such solution would be suitable for UPOV Test Guidelines as well, thus avoiding the need of frequent partial revisions of guidelines for the change of pathogen names. It is proposed to introduce this principle in the UPOV Test Guidelines. Examples of such solutions that are in use in practice at the moment:

Melon:	*Sphaerotheca fuliginea* (now *Podosphaeria xanthii*)
Cucumber:	*Erysiphe cichoracearum* (now *Golovinomyces cichoracearum*)
	Sphaerotheca fuliginea (now *Podosphaeria xanthii*)
Pumpkin:	*Erysiphe cichoracearum* (now *Golovinomyces cichoracearum*)
	Sphaerotheca fuliginea (now *Podosphaeria xanthii*)
Tomato	*Fulvia fulva* (ex *Cladosporium fulvum*)
	Oidium neolycopersici (ex *Oidium lycopersicum*)

Use of abbreviations

12. The scientific binomial for the pathogens is often replaced by a code in order to facilitate the communication between buyer and customer. Also in testing laboratories these codes are in use. In order to harmonize the use of such codes, the ISF disease resistance coding working group has introduced a system of codes. The codes are logically derived from the names of the pathogens and apply the following rules:[1]

Viruses

[1] See the ISF website: www.worldseed.org

13. Codes as adopted by ICTV are used. They are in capital letters, except in cases where a letter (in lower caps) is added to differentiate between two viruses with the same initials, e.g. TMV and ToMV. In case there is a deviation from the code as used by ICTV, an explanatory note would be added to the text.

Fungi, Bacteria, Nematodes and Insects

14. In general two letters corresponding to the first letter of the genus and species of the Latin name are used. For example: Fusarium oxysporum = Fo.

15. For more than one species within a genus all causing the same disease, the abbreviation of the genus may be used. For example, in the case of Verticillium wilt disease, both Verticillium albo-atrum (Va) and V. dahliae (Vd) have been found to be causal agents. Then Va + Vd can be indicated by V.

16. The use of a single code for different pest organisms within one crop is avoided. In such cases, the second or any other relevant letter of the species name is added to the code. For example: Corynespora cassiicola and Cladosporium cucumerinum are two different diseases in gherkin and the assigned codes are: Cca and Ccu.

17. For different subspecies of a pest organism in the same crop causing different diseases, the subspecies has been defined with a small letter. For example Fol and For, respectively for Fusarium oxysporum f.sp. lycopersici and Fusarium oxysporum f.sp. radicis-lycopersici in tomato.

Separators

18. It is also recommended that the following separators be used:

/ (slash) to separate pest organism codes,
: (colon) to separate the species code from the strain/race/pathotype code(s),
, (comma) to separate strain codes.

19. Using the above, convention resistance to Ua and Cl strains 1 and 2, for instance, will be denoted as Ua / Cl:1,2. Fol:1,2,3 indicates resistance to strains 1, 2 and 3, and Cl:α,β,δ indicates resistant to strains α, β and δ.

20. It is proposed to introduce the disease codes in the UPOV Test Guidelines.

The nomenclature of races and strains

21. As there is only limited scientific interest in pathogen levels below the pathogen, and the use of races and strains is extremely important to identify exactly the resistances in plant varieties, the main work on denomination of these races and strains is done by the ISF disease resistance coding working group. It is proposed to implement their race and strain nomenclature in the UPOV Test Guidelines.

[End of document]

[End of Annex II and of document]