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|  |  | ETWF/45/30**ORIGINAL:**  EnglishDATE:  May 21, 2014 |
| INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS  |
| Geneva |

Technical working party for fruit cropS

Forty-Fifth Session

Marrakesh, Morocco, from May 26 to 30, 2014

PARTIAL REVISION OF THE test guidelines for

Mandarins (Citrus L.-Group 1) (document TG/201/1)

Document prepared by expert from Spain

The proposal for a partial revision of the Test Guidelines for Mandarins (document TG/201/1) is set out in the Annex to this document.

[Annex follows]

7. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres

Characteristic 25

The capability of pollen germination of a great number of varieties of citrus fruits, and in this case the differences observed were as well trustworthy, repetitive, reproducible and with sufficient expression variability. Varieties may show a wide range of differences in the pollen germination percentage , which are not yet well reflected in the present Test Guidelines (document TG/201/1).

The proposal is the following:

*Current wording*

| 25. |  | Anther: viable pollen | Anthère: pollen viable | Anthere: keim­fähiger Pollen | Antera: polen viable | Example VarietiesExemplesBeispielssortenVariedades ejemplo | Note/Nota |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **QL** | **(b)** | absent | absent | fehlend | ausente | Owari (SAT) | 1 |
| **[239]** |  | present | présent | vorhanden | presente |  | 9 |

*Proposed new wording*

| 25. |  | Anther: viable pollen | Anthère: pollen viable | Anthere: keim­fähiger Pollen | Antera: polen viable | Example VarietiesExemplesBeispielssortenVariedades ejemplo | Note/Nota |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **QN** | **(b)** | absent or very low | absent ou très faible | fehlend oder sehr gering | ausente o muy bajo | Owari (SAT) | 1 |
|  |  | low | faible | gering | bajo |  | 3 |
|  |  | medium | moyen | mittel | medio | Marisol (CLE) | 5 |
|  |  | high | élevé | hoch | alto | Murcott (HMA) | 7 |
| **[239]** |  | very high | très élevé | sehr hoch | muy alto | Fortune (HMA) | 9 |

Characteristic 99

 This characteristic is considered not to satisfy the criteria for inclusion in the Test Guidelines because the open pollination depends of the various conditions of the environment, like presence of other pollinators varieties and presence of insect vectors. In consequence, it is considered to not offer repeatable and consistent results.

The proposal is the following:

To delete Characteristic 99

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ~~99.~~ |  | ~~Fruit: number of seeds (open pollination)~~ | ~~Fruit: nombre de pépins (fécondation libre)~~ | ~~Frucht: Anzahl Samen (frei abblühend)~~ | ~~Fruto: número de semillas (polinización libre)~~ |  |  |
| ~~QN(+)~~ | **~~(c)~~** | ~~absent or very few~~ | ~~absents ou très peu nombreux~~ | ~~fehlend oder sehr gering~~ | ~~ausentes o muy bajo~~ | ~~Clemenules (CLE)~~ | ~~1~~ |
|  |  | ~~few~~ | ~~peu nombreux~~ | ~~gering~~ | ~~bajo~~ | ~~Ellendale (TNR)~~ | ~~3~~ |
|  |  | ~~medium~~ | ~~moyen~~ | ~~mittel~~ | ~~medio~~ |  | ~~5~~ |
| ~~[326]~~ |  | ~~many~~ | ~~nombreux~~ | ~~groß~~ | ~~alto~~ | ~~Común (MMN)~~ | ~~7~~ |

New Characteristic after 98

Owing to the use of the new improvement methods to obtain new citrus varieties and as consequence of the existing new varieties with a fertility reduced, and the ring test carried out to confirm the methodology to observe the production of seeds by cross pollination in a proper way, it is proposed the incorporation of a new characteristic in the Test Guidelines to evaluate the ovule fertility by cross pollination with another variety or species.

The complete proposal and details are presented on a specific new proposal by the European Union (CPVO), in document TWF/45/31, and will be presented to the TWF at its forty-fifth session.

8. Explanations on the Table of Characteristics

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## 8.2 Explanations for individual characteristics

The proposal is to add the following:

Ad. 25: Anther: percentage of viable pollen

Method: The pollen should be collected when the petals begin to open (but with the anthers closed). The anthers should be introduced into a Petri dish and placed inside a silica gel dryer at room temperature, for 20-48 hours of darkness. When the anthers are open they should be moved to an 8 ºC chamber with a
70-80 % Relative Humidity for one hour. Afterwards, the pollen should be brushed onto a microscope slide with 2 ml of Brewbacker medium (Brewbaker and Kwack. 1963). Finally, the microscope slide should be placed in a 24 ºC chamber with a 75 % RH for 20 hours.

The percentage of pollen fertilization is calculated as the average of germinated pollen grains observed with a binocular in 15 visual fields from 2 different microscope slides.

(Brewbaker, J.L. and Kwack, B.H. 1963. The essential role of calcium ion in pollen germination and pollen tube growth. *Amer. Jour. Botany*. 50: 859-865.)

Percentage range indication for the states of expression:

|  |  |  |
| --- | --- | --- |
| Example varieties | Note | Range |
| Owari (SAT) | 1 | ≤ 7% |
|  | 2 | > 7 ≤ 14% |
|  | 3 | > 14 ≤ 21% |
|  | 4 | > 21 ≤ 28% |
| Marisol (CLE) | 5 | > 28 ≤ 35% |
|  | 6 | > 35 ≤ 45% |
| Murcott (HMA) | 7 | > 45 < 55% |
|  | 8 | > 55 < 65% |
| Fortune (HMA) | 9 | ≥ 65% |

Partial revision of Annex to documents TG/83/4, TG/201/1, TG/202/1, TG/203/1 and TG/204/1

The changes to the Test Guidelines for Mandarin would also be reflected in the overall Table of Characteristics included in the Annex to documents TG/83/4 (Trifoliate Orange (Poncirus) (*Citrus* L. – Group 5)), TG/201/1, TG/202/1 (Oranges (*Citrus* L. - Group 2)), TG/203/1 (Lemons and Limes (*Citrus* L. - Group 3)) and TG/204/1 (Grapefruit and Pummelo (*Citrus* L. - Group 4)) by means of a partial revision to those Test Guidelines.

 [End Annex and of document]