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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

ENLARGED EDITORIAL COMMITTEE

Geneva, January 6, 2011

MANDARINS (CITRUS; GRP.1) (PARTIAL REVISION)

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1. At its forty-first session held in Cuernavaca, Morelos State, Mexico, from September 27 to October 1, 2010, the Technical Working Party for Fruit Crops (TWF) discussed document TWF/41/28, as presented by Mr. Pedro Miguel Chomé Fuster and Mr. Guillermo Soler Fayos (Spain).

2. The TWF agreed to propose to the Technical Committee to adopt the partial revision of the Test Guidelines for Mandarin on the basis of document TWF/41/28 (copy provided at **http://www.upov.int/export/sites/upov/restrict/en/twf/41/twf_41_28.pdf**) with the reservation of experts from Morocco with regard to the proposed new characteristic (after characteristic 98) “Fruit: number of seeds (controlled manual cross-pollination)”, for which the experts from Morocco explained that more time was needed for study of the new characteristic. The TWF agreed that the Technical Committee should be invited to consider the “Comments of Morocco concerning the new characteristics proposed ‘Fruit: number of seeds (controlled manual crosspollination) and pollen viability in the UPOV Test Guidelines for Mandarin”, as set out in the Annex to this document, in conjunction with its consideration of the proposed partial revision of the Test Guidelines for Mandarin.

[Annex follows]

ANNEX

COMMENTS OF MOROCCO CONCERNING THE NEW CHARACTERISTICS PROPOSED "FRUIT: NUMBER OF SEEDS (CONTROLLED MANUAL CROSSPOLLINATION) AND POLLEN VIABILITY IN THE UPOV TEST GUIDELINE FOR MANDARIN

Comment 1: **Ovule fertility**

In the UPOV test guideline to test the ovule fertility we can find only the character nº 99 "Fruit: number of seeds (open pollination)". This character corresponds to the study of female fertility under open-pollination conditions.
The Spanish proposal on this character, namely the female fertility involves the introduction of a new character 98 bis, which is the study of female fertility by cross-pollination.

However:

1- It was shown that the study of female fertility in citrus is very effective under open pollination conditions than hand pollination (**Masahi et al., 1995**).

2- Brown and Krezdorn. **(1969)**, reported that standard pollination tests involving massive applications of pollen alone are not sufficient to delineate those varieties which are good pollinators and to distinguish the degree of female fertility.
Indeed, They do not take into account species or variety preference by the bees, the amount of pollen carried by bees, the number of visits bees make to citrus flowers and the amount of pollen produced by flowers of given varieties. These factors ignored in the new proposed character are taken into account in the character 99 (UPOV test guideline) which corresponds to the study of female fertility.

Comment 2: Pollen viability

In the original version (Ch4.2: Choice of characters, UPOV Guidelines for the mandarin), the character 25 "Anthers: pollen viable," is noted by two states of expression: "absent or present. To change this character by the addition of different expression levels of pollen viability, the Spanish proposal was based on the fact that the number of seed in the fruit depends on the pollen viability.

However:

1-In a study it was reported that The reduced seediness in the Orlando tangelos set by Minneola pollen cannot be attributed to low viability of the pollen because Minneola pollen on King orange flowers produced the highest degree e of seediness of all the combinations tested, with an average of 30 seeds in King fruit (**Philip. et al. 1961**).

2- Masashi et al. (2006) in a study designed to investigate the compatibility and incompatibility between the tangerine and the variety Ariake that pollen tube growth in styles

of Ariake x clementine and reciprocal cross combination, Clementine x Ariake was inhibited, although both accessions could produces viable pollen.

The number of seed in the fruits depends on compatibility of the pollen with the stigma of the female variety, and pollen viability rather than only the degree of pollen viability.

Conclusions

Based on these arguments, the ovule fertility can be estimated by open pollination rather than hand pollination and the new character proposed by *expert from Spain* would not be added in the UPOV
The number of seed in the fruits depends on pollen compatibility with the stigma of the female variety, and pollen viability rather than only the degree of pollen viability.

On the other hand we support the remarks made by Australian delegation concerning the conditions of experimentation regarding hand pollination. This supposes that in experimentation we should use source of pollen wish in practice not practible.

References:

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Philip C. Reece. Robert O. Register. 1961. Influence of pollinators on fruit set on robinson and Osceola tangerine hybrids. 1961. Florida state horticultural society.

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[End of Annex and of document]