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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

**AD HOC CROP SUBGROUP ON MOLECULAR TECHNIQUES
FOR ROSE**

Second Session
Angers, France, April 18, 2007

REPORT

adopted by the Ad hoc Crop Subgroup on Molecular Techniques for Rose

Opening of the Session

1. The *Ad hoc* Crop Subgroup on Molecular Techniques for Rose (hereinafter referred to as the “Crop Subgroup for Rose”) held its second session in Angers, France, on April 18, 2007. The list of participants is attached as the Annex to this report.
2. The session was opened by Mr. Joost Barendrecht (Netherlands), Chairperson of the Crop Subgroup for Rose.

Adoption of the Agenda

3. The Crop Subgroup for Rose adopted the Agenda as reproduced in document BMT-TWO/Rose/2/1 Rev, with the addition of an item for an oral report on the second session of the *Ad hoc* Crop Subgroup on Molecular Techniques for Potato (Crop Subgroup for Potato), held in Quimper, France, on April 17, 2007. It was also agreed that agenda items 4 “Molecular techniques in the examination of distinctness, uniformity and stability”, 5 “Molecular techniques in variety identification” and 6 “Molecular techniques in the assessment of essential derivation”, should be discussed simultaneously.

Developments in UPOV Concerning Biochemical and Molecular Techniques

4. The Office of the Union (Office) provided a presentation on developments in UPOV concerning biochemical and molecular techniques on the basis of document BMT-TWO/Rose/2/4. A copy of the presentation is reproduced as document BMT-TWO/Rose/2/4 Add.

5. With regard to the “Breeders’ day” to be organized within the eleventh session of the Working Group on Biochemical and Molecular Techniques, and DNA Profiling in Particular (BMT), to be held in Spain in May 2008, the representative of the International Seed Federation (ISF) recalled that there had been a lot of breeder participation in the first sessions of the BMT; however, the initial concerns of the breeders had been addressed and they were satisfied that their interests were fully represented by ISF. He confirmed that ISF was in favor of the “Breeders’ day”, in order to provide a forum to demonstrate the use of molecular techniques in relation to variety identification and essentially derived varieties, and would provide speakers for that activity.

Report on the Conclusions of the Second Session of the *Ad hoc* Crop Subgroup on Molecular Techniques for Potato

6. Mrs. Beate Rücker, Chairperson of the *Ad hoc* Crop Subgroup on Molecular Techniques for Potato (hereinafter referred to as the “Crop Subgroup for Potato”) made a brief report on the second session of the Crop Subgroup for Potato held in Quimper, France, on April 17, 2007. She reported that the Crop Subgroup for Potato had agreed that molecular markers alone should not be used to establish distinctness; however, it had agreed that molecular markers, combined with morphological characteristics, as proposed for maize by France (document BMT/10/14), might be useful for the management of reference collections. Mrs. Rücker also commented that it would be important to establish procedures which would allow the tracing-back of the basis for decision. It was noted that, for potato, in contrast to maize, there had been no concrete proposal for the use of molecular markers for the management of reference collections. For variety identification, the use of molecular markers was seen as a useful supplementary tool, in particular for authenticity checks in the course of DUS testing and in the maintenance of reference collections. However, it was noted that it might not be possible to prove the identity of a variety: for example, it was recalled that molecular markers could not be used to distinguish mutant varieties. Concerning the establishment of an exchangeable database, work on the establishment of databases for potato varieties was reported at the European Community level and at the French national level in relation to certification. It was agreed that the exchange of information between the two systems should be encouraged, whilst recognizing that it would not be easy because they used different technical platforms.

Molecular Techniques in the Examination of Distinctness, Uniformity and Stability,Molecular Techniques in Variety Identification,Molecular Techniques in the Assessment of Essential derivation

7. The Crop Subgroup for Rose received a presentation by Mr. Joël Guiard (France) concerning the possible use of molecular techniques in DUS testing on maize, on the basis of document BMT/10/14. The presentation given by Mr. Guiard is reproduced as document BMT-TWO/Rose/2/5.

8. Discussions took place on three questions raised by the Chairman, namely: the technical applicability for rose of the approach introduced by Mr. Guiard for maize; whether it would be useful to apply that approach for rose; and the implications for overall costs for in DUS testing of rose.

9. Concerning the technical applicability, Mr. Guiard considered that the same approach could potentially be used for the management of reference collections for all species, including rose. However, the proportion between morphological characteristics and molecular data would need to be calibrated on a species-by-species basis. In response to a question on whether it would only be necessary to use five or ten molecular markers in rose, Mr. Guiard explained that precision was needed and that it was important to have markers on all chromosomes. He explained that the current system applied for maize, using 30 markers, provided a robust result. In general, increasing the number of markers used would increase the precision.

10. An expert from the Netherlands observed that the approach used for maize could also be applied in rose. However, because rose was vegetatively propagated and there were many mutant varieties, careful consideration would be required if applying that approach for rose. For example, the threshold for distinctness (distinctness plus) for molecular data for rose might be smaller than for maize. He thought it would be more important to use molecular data to enlarge the coverage of the reference collection in the case of vegetatively propagated varieties in the first step of the examination of distinctness, rather than to decrease the number of varieties for direct comparison in a growing trial.

11. An expert from Germany wondered whether the approach would be useful in rose because a lot of morphological characteristics were available which, along with other sources of information, such as photographs, could be used for the selection of varieties for direct comparison in the growing trial.

12. An expert from the Community Plant Variety Office of the European Community (CPVO) recalled that in the European Community, DUS testing for rose was centralized for each of the three different types of varieties of rose and the decision of distinctness could be taken after one year of testing. He observed that the current system for examination of distinctness for rose in the European Community was reliable and efficient. That view was supported by an expert from the United Kingdom.

13. In reply to the question raised by an expert from the Netherlands as to whether Mr. Guiard had reviewed previous decisions on distinctness on the basis of molecular data alone, Mr. Guiard explained that molecular markers alone would not be used for the management of reference collections. An expert from Germany observed that distinctness needed to be considered on the basis of morphological characteristics.

14. The Crop Subgroup for Rose received a presentation by Professor Zheng Yongqi (China) on the "Application of Biomolecular Techniques in Tree Varieties Identification in China" based on document BMT-TWO/Rose/2/2. The presentation given by Professor Zheng is reproduced as document BMT-TWO/Rose/2/2 Add.

15. In reply to a question raised by an expert from the CPVO, Professor Zheng explained that studies on rose variety identification had been carried out in China and results indicated great potential for BMT as a useful tool to distinguish rose varieties that have similar morphological traits such as flower colors and leaf shapes.

16. In reply to a question raised by the representative of ISF, Professor Zheng explained that, in China, distinctness was examined on the basis of morphological characteristics and molecular techniques were only used as supplementary tools. However, Professor Zheng observed the potential usefulness of molecular techniques in the case of tree varieties and explained that the investigation of that potential was the basis for the research work being undertaken on those crops.

17. In relation to the case of six poplar varieties for which molecular markers had been used in support of the decision on distinctness, an expert from France wondered whether the six varieties were distinct on the basis of morphological characteristics alone. Professor Zheng confirmed that that was the case and that the molecular data had only been used to provide further support for the decision which had been made on the basis of morphological characteristics. An expert from the Netherlands observed that the use of molecular markers for the examination of distinctness for transgenic poplar varieties could be considered on the basis of Option 1(a) (use of molecular characteristics which were directly linked to traditional characteristics).

18. The Crop Subgroup for Rose received a presentation by Mr. Alex Reid (United Kingdom) on the “Identification of Potato Cultivars on the European Union Common Catalogue using Simple Sequence Repeat (SSR) Markers” based on document BMT-TWA/Potato/2/2. The presentation made by Mr. Reid is reproduced as document BMT-TWA/Potato /2/2 Add.

19. In reply to a question raised by the representative of the ISF, Mr. Reid clarified that the study was conducted solely for variety identification purposes. He explained that, in the United Kingdom, the name of the variety needed to be stated on fresh potatoes.

20. In reply to a question raised by an expert from the Netherlands, Mr. Reid explained that the study had been conducted only on the basis of molecular markers but it would be possible to incorporate morphological data, originating from different sources, into the database.

21. The Crop Subgroup for Rose received a presentation by Mr. Ben Vosman (Netherlands) on the “Proposal Follow Up of R&D Project, A European Collection of Rose Varieties” based on document BMT-TWO/Rose/2/3. The presentation made by Mr. Vosman is reproduced as document BMT-TWO/Rose/2/3 Add. 1.

22. The Crop Subgroup for Rose received a report from Mr. Ton Kwakkenbos (CPVO) on a meeting with professional organizations, rose breeders and CPVO experts on a Rose R&D Project (CPVO Meeting on Rose R&D Project), which had been held at the CPVO on April 17, 2007. The presentation given by Mr. Kwakkenbos is reproduced as document BMT-TWO/Rose/2/3 Add. 2.

23. The representative of ISF explained that he had participated in the CPVO Meeting on Rose R&D Project as an observer, and noted that, in the provisional conclusions of the meeting, the comments from breeders that had to be taken into account were those of the breeders represented by the International Community of Breeders of Asexually Reproduced Ornamental and Fruit-Tree Varieties (CIOPORA).

24. In reply to a question raised by an expert from Germany concerning the status of the provisional conclusions taken at the CPVO Meeting on Rose R&D Project, the Technical Director observed that the outcome of the CPVO Meeting on Rose R&D Project was a matter

for the European Community. However, he explained that UPOV welcomed the opportunity to be informed of those discussions at an early stage in order to maximize the opportunity for a harmonized approach within UPOV on those matters.

25. A representative of CIOFORA observed that the CPVO Meeting on Rose R&D Project was a starting point for discussions with breeders. The issues would also be discussed at the CIOFORA Plant Breeders' Rights Conference of the Americas, to be held on April 25, 2007, in Cuernavaca, Mexico. She emphasized the importance of enforcement and observed that the database might provide support for the enforcement of breeders' rights and, on that basis, breeders might support the costs incurred in the development of such a database.

26. Concerning the development of a centralized database, an expert from Germany observed that there should be a competition among different laboratories in order to decide on the laboratory which would produce the data for the database. An expert from France observed that, in the European Community, there was already a centralized DUS testing scheme for rose and suggested that centralized systems could be developed on a case-by-case basis. An expert from the Netherlands considered that there would be less technical difficulties in conducting DUS testing if one centralized database could be established.

27. A number of experts observed that there were a number of important issues which should be discussed with a wider range of rose breeders.

28. Mr. Kwakkenbos explained that the CPVO Meeting on Rose R&D Project had been intended to take the form of a technical "brain-storming" activity and confirmed that no decisions had been taken at the meeting. A follow-up meeting would be organized in due course.

Proposals to the Technical Working Party for Ornamental Plants and Forest Trees (TWO) and the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT)

Possible Use of Molecular Techniques in the DUS Examination

29. An expert from France observed that the need to discuss the possible introduction of molecular markers in DUS testing for rose did not seem to be so urgent compared to potato and maize. An expert from the Netherlands thought that the use of molecular markers in rose would be more relevant for variety identification purposes, but observed that molecular markers might be useful in the examination of distinctness in relation to the detection of mutants.

30. The Crop Subgroup for Rose concluded that there was not an urgent requirement to introduce molecular markers in the DUS examination of rose, but noted that the use of molecular markers in combination with morphological characteristics could be useful for the management of reference collections.

Variety Identification

31. With regard to whether a DNA fingerprint might be attached to the official variety description produced by an authority, an expert from the Netherlands observed that that would provide a potential advantage for breeders; however, careful consideration would be required

to determine what kind of information should be included. The Chairman noted that the availability of a DNA fingerprint might assist in a quick method of detecting illegal imports. The Technical Director noted that, in that respect, breeders were already utilizing molecular tools for enforcement of plant breeders' right. An expert from France observed that techniques used for the preparation of DNA fingerprint might evolve over time, and suggested that it might be particularly useful to conserve DNA samples.

32. The Crop Subgroup for Rose agreed on the importance of considering the following matters at the UPOV level:

- (a) whether it would be useful for authorities to attach a DNA fingerprint to the official variety description;
- (b) for which crops DNA fingerprints attached to the official variety description might be of most interest and why; and
- (c) whether it would be useful for authorities to conserve DNA samples.

Exchangeable Databases

33. Concerning the development of an exchangeable database, the Crop Subgroup for Rose was informed that the Technical Committee, at its forty-third session held in March 2007, had invited BMT Crop Subgroups for Rose, for Potato and for Oilseed Rape to consider how to take that matter forward.

34. An expert from France reported that, at the Congress of the International Seed Testing Association (ISTA) to be held in Brazil in May 2007, the ISTA Variety Committee would discuss a protocol for variety identification, and observed that a link between the work being done within ISTA and that taking place within UPOV would be important.

Future Program

35. The Crop Subgroup for Rose agreed to hold its third session in May 2008, in Spain, in association with the eleventh session of the BMT.

[Annex follows]

ANNEX

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