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ADMINISTRATIVE AND LEGAL COMMITTEE

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**REPORT ON IMPORTANT QUESTIONS RAISED IN THE WORKING GROUP
ON BIOCHEMICAL AND MOLECULAR TECHNIQUES AND
DNA-PROFILING IN PARTICULAR**

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1. This document is to report questions of a legal or policy nature raised and discussed during the sixth session of the Working Group on the Biochemical and Molecular Techniques and DNA-Profiling in Particular (BMT), held from March 1 to 3, 2000, and then discussed in the thirty-sixth session of the Technical Committee, held from April 3 to 5, 2000. In light of the nature of the questions, the Technical Committee decided to report the series of questions to the Administrative and Legal Committee (CAJ).

2. The relevant paragraphs of the report of the said session of the BMT are set out in the Annex. The points of the questions are summarized as follows:

(a) Interpretation of “the expression of the characteristics resulting from a given genotype or combination of genotypes”: The BMT revisited the question of interpretation, which was still divided into two positions. Several experts insisted that the wording implied “phenotype”. Therefore, differences in molecular markers possibly resulting from differences in non-expressed parts of DNA could not alone establish distinctness. In response to this interpretation, the Vice Secretary-General of UPOV reported the view expressed in the CAJ that these words do not necessarily mean “phenotype”. The same language would be satisfied if a characteristic is simply inherited. The decision on the use of molecular markers for the assessment of distinctness should be based upon technical consideration within the scope of the Convention.

(b) Minimum distance: With respect to the concept of a “minimum distance”, the BMT noted two different views.

(i) One view was that the concept of a minimum distance had reduced in significance after the adoption of the 1991 Act and the introduction of essential derivation concept. All clear differences satisfying uniformity and stability criteria, irrespective of their degree and the nature of the characteristics, should be accepted as “clearly distinguishable”. In practice, the differences had been very small in some cases, e.g., in single-gene controlled characteristics for disease resistance and flower color.

(ii) Another view was that the concept of a minimum distance should be taken into account, before the introduction of new characteristics, to ensure the quality of protection. The introduction of the essential derivation concept should not influence what is “clearly distinguishable”. All small differences, such as one allele difference in DNA-profiling, should not be regarded as “clearly distinguishable”.

(c) Supporting evidence: The BMT discussed the introduction of molecular characteristics as supporting evidence. The legal status of supporting evidence characteristics was questioned. Some delegates suggested they should be independent characteristics used as a last resort only.

3. The interpretation of the words in Article 1(vi) of the 1991 Act was discussed in a joint session of the Administrative and Legal Committee and the Technical Committee (see documents CAJ/32/3-TC/29/3 and CAJ/32/10-TC/29/9). The Administrative and Legal Committee reaffirmed, at its thirty-sixth session, the interpretation given in the joint session (see documents CAJ/36/3 and CAJ/36/6), but continued to discuss the same issue in its thirty-seventh and thirty-eighth sessions (see documents CAJ/37/3, CAJ/37/6, CAJ/38/3, and CAJ/38/7).

4. The lack of a uniform interpretation and understanding on the issues summarized in paragraph 2 inhibited substantive discussion in the BMT on the possible application of molecular techniques within the UPOV system. The BMT decided accordingly to submit these fundamental issues to the Technical Committee and the Administrative and Legal Committee for clarification.

5. Following the request of the BMT, the Technical Committee discussed the issues and noted the existence of differing interpretations and understandings on the above points amongst member States and also between legal and technical experts. The Technical Committee therefore proposed a small *ad hoc* meeting composed of technical and legal experts with a view to establishing a basis for common understanding and interpretation of these fundamental questions before further discussion in its next session and in the Administrative and Legal Committee.

[Annex follows]

Extract from Document BMT/6/13
(Report of the sixth session of the BMT)

[...]

Phenotype vs. Genotype

43. The Working Group discussed the interpretation of the wording “the expression of the characteristics resulting from a given genotype or combination of genotype” in Article 1(vi) of the 1991 Act of the UPOV Convention. On one hand, several experts insisted that the purport of the wording should be “phenotypes”. The expert from ASSINSEL stated that in his opinion the wording had been clearly intended to mean phenotypes in the preparation of the 1991 Act.

44. With this interpretation in conjunction with Article 7, a possible conclusion would be that the use of characteristics other than phenotypic characteristics could not be accepted for the judgement of distinctness. At this stage, molecular characteristics could not be regarded as phenotypic characteristics, because the linkage between phenotypic and molecular information had not been well established, and because some information given by molecular techniques might not relate to any phenotypic information. Therefore, differences in molecular markers possibly resulting from differences in non-coding parts of DNA could not alone establish distinctness between two varieties. If this interpretation were strictly applied, molecular techniques would not be used alone for the judgement of distinctness without the revision of the Convention.

45. The Vice Secretary-General of UPOV reminded the Working Group that the Administrative and Legal Committee of UPOV (CAJ) had expressed the view that the wording does not necessarily mean “phenotypes”. The same language may simply mean that a characteristic must be inherited. No discussion of the subject can be found in the records of the 1991 Diplomatic Conference. The CAJ was of the view that the language of the 1991 Act of the Convention does not require or forbid the use of molecular markers for the judgement of distinctness. Technical circles must recommend whether it is desirable to use such techniques in the light of the overall functioning and objectives of the Convention. His intervention was based on the following propositions in the CAJ (Paragraph 15 of CAJ/36/6):

- (a) “Expression of characteristics” should not be understood in the genetic sense. A “characteristic” was an element, in the abstract, of the description of a variety, and the “expression” was the specific form that the element assumed; for instance, the words applied equally well to the length of a stem as they did to a gene (expression being the allele in that case).
- (b) The question whether “directly-read characteristics of the genome” could be taken into account was not settled by the Convention, which did not pronounce on the nature of the characteristics to be considered.

(c) The question had to be settled case by case according to the usual criteria, which included the requirement of the clearness of the difference noted and the need to abide by the essential purpose of the protection system.

(d) It would in particular be contrary to that purpose to allow the protection of one plant group that was too close to another. It would be wrong to conclude from the position set forth in paragraph 6 of document CAJ/36/3 that the use of biochemical characteristics was sufficient for determining distinctness. The 1991 Act did not rule out the use of new technological solutions, but did not validate those solutions either.

(e) It was sometimes suggested that distinctness was associated with the phenotype and the concept of essentially-derived variety with the genotype. The problem was, however, that Article 1(vi) (on the definition of the variety), and Article 14(5)(b) of the 1991 Act used the same terminology.

Minimum Distance

46. The Working Group also discussed the concept of “minimum distance” and the impact of the introduction of molecular techniques on “minimum distance”. The expert from ASSINSEL posed the problem that, if molecular characteristics were accepted for DUS testing, one molecular band difference might be regarded as “clearly distinguishable” in Article 7 of the 1991 Act. Is that what we want? He stressed the need for defining a new concept of “minimum distance” for molecular characteristics, e.g., the number of markers needed to establish distinctness and the necessary quality of the markers. The Chairman questioned how the minimum distance (threshold level for assessing distinctness) was defined for molecular characteristics, considering the fact that single-gene controlled characteristics, such as disease resistance and flower color, could establish distinctness in the current system.

47. One view was that the concept of the minimum distance had reduced significance after the adoption of the 1991 Act. The Vice Secretary-General of UPOV noted that a very small difference, such as a point mutation, could establish distinctness in many species. This was taken by ornamental breeders to be a weakness of the UPOV system. However, the introduction of the essential derivation concept by the 1991 Act had enabled breeders to defend their interests in such cases. The essential derivation concept had released national offices from the most extreme forms of minimum distance dilemma. One expert also stated that the minimum distance had been simply a concept and had never been clearly defined. In practice, the minimum distance had in some cases been almost zero.

48. Another view was that, on judging distinctness, the concept of minimum distance should be taken into consideration in order to ensure the quality of protection. If the concept of the minimum distance were to be nullified, and if all small differences could be accepted as the basis for distinctness, the breeder would have to make use of essential derivation in every case. The introduction of the essential derivation concept should not influence the concept of minimum distance. In addition, the quality and meaning of protection would be significantly degraded, and the existing protection framework would be broken down. The creation of new varieties would become extremely easy, and the value of protection might be almost nothing. The expert from ASSINSEL stated that breeders might not wish to face such a situation.

[...]

Supporting Evidence

50. The Working Group also discussed the use of molecular characteristics as supporting evidence for the assessment of distinctness. The expert from the United Kingdom questioned the status of supporting evidence characteristics. If the final decision on the distinctness of the variety was based on whether molecular characteristics showed a clear difference or not, molecular characteristics would play the same role that normal UPOV characteristics did in the decision making process. In addition, he observed that the use of molecular techniques as supporting evidence for performance characteristics proposed by the expert from France would fully open the door to performance characteristics for the establishment of distinctness, which, as such, might result in a significant change in the current protection system.

51. The expert from ASSINSEL stated that ASSINSEL has already been in a position to accept supporting evidence characteristics. However, the use of supporting evidence characteristics should be limited to the cases where testing experts are strongly convinced of the distinctness of varieties by the results in the field trial. If the testing experts have no clear conviction based on the field trial, the supporting evidence characteristics should not be used at all. The status of “supporting evidence” characteristics was therefore clearly different from that of normal UPOV characteristics.

52. He also stated that the use of molecular characteristics as supporting evidence characteristics might not be a big problem for ASSINSEL. The important question was whether molecular characteristics should be introduced into the judgement of distinctness, uniformity and stability as normal UPOV characteristics in the future.

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