



BMT/11/20 Add.

ORIGINAL: English

DATE: September 30, 2008

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

**WORKING GROUP ON BIOCHEMICAL AND MOLECULAR
TECHNIQUES AND DNA PROFILING IN PARTICULAR**

Eleventh Session
Madrid, September 16 to 18, 2008

ADDENDUM

A PRACTICAL EXAMPLE OF THE POSSIBLE USE OF MOLECULAR TECHNIQUES
IN VARIETY IDENTIFICATION

*Document prepared by experts from the
Community Plant Variety Office of the European Community (CPVO)*

A practical example of the possible use of molecular techniques in variety identification

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UPOV BMT Meeting, September 2008

Practical example

- CPVO R & D project “A European reference collection of rose varieties”
- 380 rose varieties covering several cultivation types
- 12 selected microsatellite markers
- Project delivered a database, physical DNA samples and a DNA fingerprint for each variety

**A practical example of the possible
use of molecular techniques
in variety identification**

- Background
- DNA sample and its use
- Technical requirements
- Administrative and financial considerations
- Legal considerations

Background

- Breeders expressed difficulties in exercising their right
- Identification of suspicious material in growing test is long lasting
- Comparison with variety description difficult, environmental impact
- Identification with help of molecular techniques rapid and nearly free of GxE

DNA sample and its use (1)

- DNA sample from the plant material used for the DUS test as “official sample” provides an added value
- Extraction by an accredited laboratory according to an agreed procedure
- Procedure and sample keeping monitored by a plant variety rights authority

DNA sample and its use (2)

- Problem: Methods used for the production of DNA fingerprint evolve rapidly
- Question: It might be sufficient to only take a DNA sample and to produce a DNA fingerprint only when considered necessary but then with the method applied and adopted at that time

DNA sample and its use (3)

Two options can be envisaged (breeder's preference to be found out)

- Option A: To only keep, in addition to the variety description, a DNA sample from the original material of the variety
- Option B: To keep a DNA sample and a DNA fingerprint of the variety

DNA sample and its use (4)

- In case of high level of breeder's interest DNA sample keeping could be generalised
- In case of low interest, DNA sample keeping only for those breeders requesting that provision
- Any case requires an accredited laboratory, being audited by the PVR authority

Technical requirements (1)

Option A

- a.) DUS examiner takes plant material from plant sample used for the official DUS test
- b.) The plant sample will be sealed and transported to an accredited laboratory
- c.) DNA sample will be extracted from the plant sample, kept and maintained at the lab according to an adopted procedure

Technical requirements (2)

Option B

- a.) As above, plus sample as elaborated for option A will be used
- b.) A selection of STMS markers according to a technical protocol for the marker analysis will be used
- c.) A DNA fingerprint will be produced

Administrative and financial considerations

Option A

- If the procedure would be generalized, the costs could be covered by fees.
- If this was not the case, the applicant in question would bear the costs

Option B

- As above plus the applicant would bear the costs for each DNA fingerprint
- The lab would send the fingerprint to the CPVO and to the applicant

Legal considerations (1)

Option A

- a.) To clarify the ownership of the DNA sample
- b.) To clarify who has responsibility of the DNA sample keeping (lab/authority/breeder?)
- c.) To clarify who has the power to decide on the granting of access in case of request for access to DNA sample by others than the breeder (3rd parties or court)

Legal considerations (2)

Option B

- a.) As above plus to clarify if the DNA fingerprint could be kept confidential (if requested by breeder)
- b.) To clarify whether the DNA fingerprint is part of the official variety description

Questionnaire to investigate about breeder's preference

Option A: To only keep, in addition to the variety description, a DNA sample from the original material of the variety

Option B: To keep a DNA sample and a DNA fingerprint of the variety