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CPVO · OCVV
Community Plant Variety Office
Office Communautaire des Variétés Végétales

PROTOCOL FOR TESTS ON DISTINCTNESS, UNIFORMITY AND STABILITY

Mandevilla sanderi (Hemsl.) Woodson; *Mandevilla* x*amabilis* (Backh. & Backh. f.) Dress

MANDEVILLA

UPOV Code: MANDE_SAN; MANDE_AMA

Adopted on 11/03/2015

Entry into force on 11/03/2015

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CPVO-TP/298/1

1. SUBJECT OF THE PROTOCOL AND REPORTING

1.1 Scope of the technical protocol

This Technical Protocol applies to all varieties of ***Mandevilla sanderi*** **(Hemsl.) and *Mandevilla x amabilis* (Backh. & Backh. f.) Dress**.

The protocol describes the technical procedures to be followed in order to meet the requirements of Council Regulation 2100/94 on Community Plant Variety Rights. The technical procedures have been agreed by the Administrative Council and are based on documents agreed by the International Union for the Protection of New Varieties of Plants (UPOV), such as the General Introduction to DUS (UPOV Document TG/1/3 http://www.upov.int/export/sites/upov/resource/en/tg_1_3.pdf), its associated TGP documents (http://www.upov.int/tgp/en/) and the relevant UPOV Test Guideline TG/298/1 dated 09/04/2014 (http://www.upov.int/edocs/tgdocs/en/tg298.pdf) for the conduct of tests for Distinctness, Uniformity and Stability.

1.2 Entry into Force

The present protocol enters into force on **11.03.2015**. Any on-going DUS examination of candidate varieties started before the aforesaid date will not be affected by the approval of the Technical Protocol. Technical examinations of candidate varieties are carried out according to the TP in force when the DUS test starts. The starting date of a DUS examination is considered to be the due date for submitting of plant material for the first test period.

In cases where the Office requests to take-over a DUS report for which the technical examination has either been finalized or which is in the process to be carried out at the moment of this request, such report can only be accepted if the technical examination has been carried out according to the CPVO TP which was in force at the moment when the technical examination started.

1.3 Reporting between Examination Office and CPVO and Liaison with Applicant

1.3.1 Reporting between Examination Office and CPVO

The Examination Office shall deliver to the CPVO a preliminary report ("the preliminary report") no later than two weeks after the date of the request for technical examination by the CPVO.

The Examination Office shall also deliver to the CPVO a report relating to each growing period ("the interim report") and, when the Examination Office considers the results of the technical examination to be adequate to evaluate the variety or the CPVO so requests, a report relating to the examination ("the final report").

The final report shall state the opinion of the Examination Office on the distinctness, uniformity and stability of the variety. Where it considers those criteria to be satisfied, or where the CPVO so requests, a description of the variety shall be added to the report. If a report is negative the Examination Office shall set out the detailed reasons for its findings.

The interim and the final reports shall be delivered to the CPVO as soon as possible and no later than on the deadlines as laid down in the designation agreement.

1.3.2 Informing on problems in the DUS test

If problems arise during the course of the test the CPVO should be informed immediately so that the information can be passed on to the applicant. Subject to prior permanent agreement, the applicant may be directly informed at the same time as the CPVO particularly if a visit to the trial is advisable.

1.3.3 Sample keeping in case of problems

If the technical examination has resulted in a negative report, the CPVO shall inform the Examination Office as soon as possible in case that a representative sample of any relevant testing material shall be kept.

2. MATERIAL REQUIRED

2.1 Plant material requirements

Information with respect to the agreed closing dates and submission requirements of plant material for the technical examination of varieties can be found on http://cpvo.europa.eu/applications-and-examinations/technical-examinations/submission-of-plant-material-s2-publication in the special issue S2 of the Official Gazette of the Office. General requirements on submission of samples are also to be found following the same link.

2.2 Informing the applicant of plant material requirements

The CPVO informs the applicant that

- he is responsible for ensuring compliance with any customs and plant health requirements.
- the plant material supplied should be visibly healthy, not lacking in vigour, nor affected by any important pest or disease.
- the plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

2.3 Informing about problems on the submission of material

The Examination Office shall report to the CPVO immediately in cases where the test material of the candidate variety has not arrived in time or in cases where the material submitted does not fulfil the conditions laid down in the request for material issued by the CPVO.

In cases where the examination office encounters difficulties to obtain plant material of reference varieties the CPVO should be informed.

3. METHOD OF EXAMINATION

3.1 Number of growing cycles

The minimum duration of tests should normally be a single growing cycle.

3.2 Testing Place

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 "Examining Distinctness" http://www.upov.int/edocs/tgpdocs/en/tgp_9.pdf.

3.3 Conditions for Conducting the Examination

The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.

Because daylight varies, colour determinations made against a colour chart should be made either in a suitable cabinet providing artificial daylight or in the middle of the day in a room without direct sunlight. The spectral distribution of the illuminant for artificial daylight should conform with the CIE Standard of Preferred Daylight D 6500 and should fall within the tolerances set out in the British Standard 950, Part I. These determinations should be made with the plant part placed against a white background. The colour chart and version used should be specified in the variety description.

3.4 Test design

3.4.1 Each test should be designed to result in a total of at least 10 plants.

3.4.2 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle.

3.5 Additional tests

In accordance with Article 83(3) of Council Regulation No. 2100/94 an applicant may claim either in the Technical Questionnaire or during the test that a candidate has a characteristic which would be helpful in establishing distinctness. If such a claim is made and is supported by reliable technical data, an additional test may be undertaken providing that a technically acceptable test procedure can be devised.

Additional tests will be undertaken, with the agreement of the President of CPVO, where distinctness is unlikely to be shown using the characters listed in the protocol.

3.6 Constitution and maintenance of a variety collection

The process for the constitution and the maintenance of a variety collection can be summarized as follows:

Step 1: Making an inventory of the varieties of common knowledge

Step 2: Establishing a collection ("variety collection") of varieties of common knowledge which are relevant for the examination of distinctness of candidate varieties

Step 3: Selecting the varieties from the variety collection which need to be included in the growing trial or other tests for the examination of distinctness of a particular candidate variety.

3.6.1 Forms of variety collection

The variety collection shall comprise variety descriptions and may comprise living plant material. The variety description shall be produced by the examination office unless special cooperation exists between examination offices and the CPVO. The descriptive and pictorial information produced by the examination office shall be held and maintained in a form of a database.

3.6.2 Living Plant Material

The examination office shall obtain living plant material of reference varieties as and when those varieties need to be included in growing trials or other tests.

3.6.3 Making an inventory of varieties of common knowledge for inclusion in the variety collection

The inventory shall include varieties protected under National and Community PBR and varieties in trade or in commercial registers.

In addition to the above, the inventory shall be extended to the appropriate to

- any commercial document in which varieties are marketed as propagating or harvested material, especially when there is no official registration system;
- any list including varieties which are publicly available within plant collections (varieties included in genetic resource collections, collection of old varieties, etc.);
- information provided by relevant plant experts;
- relevant example varieties referred to in the technical protocols for the examination of distinctness.

4. ASSESSMENT OF DISTINCTNESS, UNIFORMITY AND STABILITY

The prescribed procedure is to assess distinctness, uniformity and stability in a growing trial.

4.1 Distinctness

4.1.1 General recommendations

It is of particular importance for users of this Technical Protocol to consult the UPOV-General Introduction to DUS (link in chapter 1 of this document) and TGP 9 'Examining Distinctness' (http://www.upov.int/edocs/tgpdocs/en/tgp_9.pdf) prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in this Technical Protocol.

4.1.2. Consistent differences

The differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

4.1.3 Clear differences

Determining whether a difference between two varieties is clear depends on many factors, and should consider, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo-qualitative manner. Therefore, it is important that users of these Technical Protocols are familiar with the recommendations contained in the UPOV-General Introduction to DUS prior to making decisions regarding distinctness.

4.1.4 Number of plants/parts of plants to be examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 9 plants or parts taken from each of 9 plants and any other observations made on all plants in the test, disregarding any off-type plants.

4.1.5 Method of observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the third column of the Table of Characteristics (see document TGP/9 "Examining Distinctness", Section 4 "Observation of characteristics"):

MG: single measurement of a group of plants or parts of plants
MS: measurement of a number of individual plants or parts of plants
VG: visual assessment by a single observation of a group of plants or parts of plants
VS: visual assessment by observation of individual plants or parts of plants

Type of observation: visual (V) or measurement (M)
"Visual" observation (V) is an observation made on the basis of the expert's judgment. For the purposes of this document, "visual" observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. colour charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

Type of record: for a group of plants (G) or for single, individual plants (S)
For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual plants or parts of plants (S). In most cases, "G" provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness.

In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2.

4.2 Uniformity

It is of particular importance for users of this Technical Protocol to consult the UPOV-General Introduction to DUS (link in chapter 1 of this document) and TGP 10 'Examining Uniformity' (http://www.upov.int/edocs/tgpdocs/en/tgp_10.pdf) prior to making decisions regarding uniformity. However, the following point is provided for elaboration or emphasis in this Technical Protocol.

Uniformity assessment by off-types
For the assessment of uniformity, a population standard of 1% and an acceptance probability of at least 95 % should be applied. In the case of a sample size of 10 plants, 1 off-type is allowed.

4.3 Stability

4.3.1 It is of particular importance for users of this Technical Protocol to consult the UPOV-General Introduction to DUS (link in chapter 1 of this document) and TGP 11 'Examining Stability' (http://www.upov.int/edocs/tgpdocs/en/tgp_11.pdf).

In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.

4.3.2 Where appropriate, or in cases of doubt, stability may be further examined by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

5. GROUPING OF VARIETIES AND ORGANIZATION OF THE GROWING TRIAL

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics.

5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

a) Plant: number of climbing tendrils (characteristic 2)

b) Stem: length of internode (characteristic 5)

c) Leaf blade: bulging between veins (characteristic 21)

d) Corolla: diameter (characteristic 36)

e) Corolla throat: shape (characteristic 41)

f) Corolla lobe: main colour of upper side (characteristic 48), with the following groups:

Gr. 1: white
Gr. 2: yellow
Gr. 3: pink
Gr. 4: red
Gr. 5: purple red

5.4 If other characteristics than those from the TP are used for the selection of varieties to be included into the growing trial, the examination office shall inform the CPVO and seek the prior consent of the CPVO before using these characteristics.

6. INTRODUCTION TO THE TABLE OF CHARACTERISTICS

6.1 Characteristics to be used

The characteristics to be used in DUS tests and preparation of descriptions shall be those referred to in the table of characteristics. All the characteristics shall be used, providing that observation of a characteristic is not rendered impossible by the expression of any other characteristic, or the expression of a characteristic is prevented by the environmental conditions under which the test is conducted or by specific legislation on plant health. In the latter case, the CPVO should be informed.
The Administrative Council empowers the President, in accordance with Article 23 of Commission Regulation N°874/2009, to insert additional characteristics and their expressions in respect of a variety.

States of expression and corresponding notes
In the case of qualitative and pseudo-qualitative characteristics, all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

State	Note
small	3
medium	5
large	7

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

State	Note
very small	1
very small to small	2
small	3
small to medium	4
medium	5
medium to large	6
large	7
large to very large	8
very large	9

6.2 Example Varieties

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic.

6.3 Legend

For the CPVO N° column:

G	Grouping characteristic	– see Chapter 5
MG, MS, VG, VS		– see Chapter 4.1.5
QL	Qualitative characteristic	
QN	Quantitative characteristic	
PQ	Pseudo-qualitative characteristic	

For the UPOV N° column:

The numbering of the characteristics is provided as a reference to the ad hoc UPOV guideline.

(*) UPOV Asterisked characteristic – Characteristics that are important for the international harmonization of variety descriptions.

(a)-(d)	See Explanations on the Table of Characteristics in Chapter 8.1
(+)	See Explanations on the Table of Characteristics in Chapter 8.2

7. TABLE OF CHARACTERISTICS

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
1.	**1.**	**VG**	**Plant: density of foliage**		
QN			sparse		3
			medium	Scarlet Pimpernel	5
			dense	Red Fantasy	7
2.	**2. (*)**	**VG/MS**	**Plant: number of climbing tendrils**		
QN			none or few	Scarlet Pimpernel	1
			medium	Sunmandecrim	2
G			many	Sunmandetomi	3
3.	**3.**	**VG**	**Young stem: intensity of green colour**		
QN		**(a)**	light		1
			medium		2
			dark		3
4.	**4. (*)**	**VG**	**Young stem: anthocyanin coloration**		
QN		**(a)**	absent or very weak	Sunparacoho	1
			weak	Alegnuflor 704	2
			moderate	Cotton Candy	3
			strong	Gendipred	4
5.	**5. (*)**	**VG/MS**	**Stem: length of internode**		
(+)			short	Cotton Candy	3
QN			medium	Lanoregon	5
G			long	Sunpararenga	7
6.	**6. (*)**	**VG**	**Stem: pubescence**		
QL			absent	Sunparacoho	1
			present	Scarlet Velvet	9

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
7.	**7. (*)**	**VG**	**Leaf: arrangement**		
(+)		**(b)**	opposite	Julie	1
QL			decussate	Sunmandetomi	2
8.	**8.**	**VG/MS**	**Petiole: length**		
QN		**(b)**	short	Cotton Candy	1
			medium	Sunparacoho	2
			long	Sunpararenga	3
9.	**9.**	**VG**	**Petiole: intensity of green colour**		
QN		**(b)**	light		1
			medium		2
			dark		3
10.	**10. (*)**	**VG**	**Petiole: anthocyanin coloration**		
QN		**(b)**	absent or very weak	Sunparacoho	1
			weak	Lanoregon	2
			moderate	Laniowa	3
			strong	Gendipdured	4
11.	**11. (*)**	**VG**	**Petiole: pubescence**		
QL		**(b)**	absent	Crimson Silk	1
			present	Scarlet Velvet	9
12.	**12.**	**VG/MS**	**Leaf blade: length**		
QN		**(b)**	short	Lannevada	3
			medium	Lanoregon	5
			long	Cotton Candy	7
13.	**13.**	**VG/MS**	**Leaf blade: width**		
QN		**(b)**	narrow	Lanoregon	3
			medium	Sunparamiho	5
			broad	Gendiprote	7

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
14.	**14.**	**VG/MS**	**Leaf blade: ratio length/width**		
(+)		**(b)**	low		1
QN			medium		2
			high		3
15.	**15.**	**VG**	**Leaf blade: position of broadest part**		
QN		**(b)**	towards base		1
			at middle		2
			towards apex		3
16.	**16. (*)**	**VG**	**Leaf blade: shape of apex**		
(+)		**(b)**	acuminate	Sunparacoho	1
PQ			acute	Monrey	2
			rounded	Lancalifornia	3
17.	**17.**	**VG**	**Leaf blade: shape of base**		
(+)		**(b)**	acute	Summer Dress	1
PQ			rounded	Sunmandeho	2
			cordate	Rose Giant	3
18.	**18.**	**VG**	**Leaf blade: main colour**		
PQ		**(b)**	whitish yellow		1
		(d)	yellow green		2
			light green		3
			medium green	Cotton Candy	4
			dark green	Gendipred	5

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
19.	**19.**	**VG**	**Leaf blade: secondary colour**		
PQ		**(b)**	none		1
		(d)	whitish yellow		2
			yellow green		3
			light green		4
			medium green		5
			dark green		6
20.	**20.**	**VG**	**Leaf blade: glossiness of upper side**		
QN		**(b)**	weak		1
			medium	Celine	2
			strong	Lanoregon	3
21.	**21. (*)**	**VG**	**Leaf blade: bulging between veins**		
(+)		**(b)**	absent or very weak	Alegnuflor 704	1
QN			weak	Gendiprote	2
			medium	Sunparacopapi	3
G			strong	Cotton Candy	4
22.	**22.**	**VG**	**Leaf blade: pubescence of upper side**		
QL		**(b)**	absent	Crimson Silk	1
			present	Scarlet Velvet	9
23.	**23.**	**VG**	**Leaf blade: intensity of green colour of lower side**		
QN		**(b)**	light	Cotton Candy	1
			medium	Celine	2
			dark	Gendiprote	3
24.	**24. (*)**	**VG**	**Leaf blade: pubescence of lower side**		
QL		**(b)**	absent	Celine	1
			present		9

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
25.	**25.**	**VG**	**Leaf blade: shape in cross section**		
(+)		**(b)**	incurving	Crimson Silk	1
QN			straight	Lanwisconsin	2
			recurving		3
26.	**26.**	**VG**	**Leaf blade: undulation of margin**		
	(*)	**(b)**	absent or very weak	Laniowa	1
QN			weak	Lanidaho	2
			medium	Sunpararenga	3
			strong		4
27.	**27.**	**VG/MS**	**Pedicel: length**		
QN		**(c)**	short	Sunpararenga	1
			medium	Lanarizona	2
			long	Sunparacoho	3
28.	**28.**	**VG**	**Pedicel: intensity of green colour**		
QN		**(c)**	light	Crimson Silk	1
			medium	Lanmissouri	2
			dark		3
29.	**29. (*)**	**VG**	**Pedicel: anthocyanin coloration**		
QN		**(c)**	absent or weak	Cotton Candy	1
			medium	Lanmissouri	2
			strong	Scarlet Velvet	3
30.	**30. (*)**	**VG**	**Pedicel: pubescence**		
QL		**(c)**	absent	Cotton Candy	1
			present		9

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
31.	**31. (*)**	**VG**	**Flower bud: shape**		
(+)		**(c)**	trullate		1
PQ			rhombic		2
			obtrullate	Alegnuflor 711	3
32.	**32. (*)**	**VG**	**Flower: type**		
(+)		**(c)**	single		1
QL			double		2
33.	**33.**	**VG/MS**	**Calyx: length**		
QN		**(c)**	short	Sunparacoho	1
			medium	Laniowa	2
			long		3
34.	**34.**	**VG**	**Calyx: main colour of <u>basal</u> half**		
PQ		**(c)**	light green	Laniowa	1
		(d)	medium green	Crimson Silk	2
			dark green		3
			light red		4
			medium red		5
			dark red		6
35.	**35. (*)**	**VG**	**Calyx: main colour of <u>distal</u> half**		
PQ		**(c)**	light green	Sunparacoho	1
		(d)	medium green	Lanminesota	2
			dark green		3
			light red	Lanwisconsin	4
			medium red	Lanmissouri	5
			dark red		6

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
36.	**36. (*)**	**VG/MS**	**Corolla: diameter**		
(+)		**(c)**	small	Cotton Candy	3
QN			medium	Lanmissouri	5
G			large	Scarlet Velvet	7
37.	**37.**	**VG/MS**	**Corolla tube: length**		
(+)		**(c)**	short	Cotton Candy	1
QN			medium	Alegnuflor 711	2
			long	Laniowa	3
38. (+)	**38. (*)**	**VG**	**Corolla tube: colour of outer side**		
PQ		**(c)**	RHS Colour Chart (indicate reference number)		
39.	**39. (*)**	**VG/MS**	**Corolla throat: length**		
(+)		**(c)**	short	Sunparacoho	1
QN			medium	Lannevada	2
			long	Lanwisconsin	3
40.	**40.**	**VG/MS**	**Corolla throat: width of distal part**		
(+)		**(c)**	narrow	Sunparacoho	1
QN			medium	Cotton Candy	2
			broad	Scarlet Velvet	3
41.	**41. (*)**	**VG**	**Corolla throat: shape**		
(+)		**(c)**	funnel-shaped		1
PQ			campanulate		2
G			tubular		3
42.	**42.**	**VG**	**Corolla throat: colour of <u>basal</u> half of outer side**		
PQ		**(c)**	RHS Colour Chart (indicate reference number)		

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
43.	**43. (*)**	**VG**	**Corolla throat: colour of <u>distal</u> half of outer side**		
PQ		**(c)**	RHS Colour Chart (indicate reference number)		
44.	**44.**	**VG**	**Corolla throat: colour of <u>basal</u> half of inner side**		
PQ		**(c)**	RHS Colour Chart (indicate reference number)		
45.	**45. (*)**	**VG**	**Corolla throat: colour of <u>distal</u> half of inner side**		
PQ		**(c)**	RHS Colour Chart (indicate reference number)		
46.	**46. (*)**	**VG**	**Corolla lobe: symmetry**		
(+)		**(c)**	symmetric or slightly asymmetric		1
QN			moderately asymmetric		2
			strongly asymmetric		3
47.	**47. (*)**	**VG**	**Corolla lobe: shape of apex**		
(+)		**(c)**	acuminate	Crimson Silk	1
PQ			acute	Lanarizona	2
			rounded		3
48.	**48. (*)**	**VG**	**Corolla lobe: main colour of upper side**		
PQ G		**(c) (d)**	RHS Colour Chart (indicate reference number)		
49.	**49. (*)**	**VG**	**Corolla lobe: secondary colour of upper side**		
			none		1
PQ		**(c) (d)**	RHS Colour Chart (indicate reference number)		
50.	**50.**	**VG**	**Corolla lobe: recurving of margin**		
QN		**(c)**	weak		3
			medium	Red Fantasy	5
			strong	Sunmandecrim	7

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
51.	**51.**	**VG**	**Corolla lobe: undulation of margin**		
QN		**(c)**	weak	Lanoregon	1
			medium	Crimson Silk	2
			strong	Lanmissouri	3
52.	**52.**	**VG**	**Corolla lobe: shape of distal part in longitudinal section**		
(+)		**(c)**	concave	Crimson Silk	1
QN			straight	Lanmontana	2
			convex	Alegnuflor 711	3
53.	**53.**	**VG**	**Filament: colour**		
PQ		**(c)**	yellowish white	Scarlet Velvet	1
			light yellow	Lanwisconsin	2
			medium yellow	Gendipred	3
			light green	Lanarizona	4
			medium green		5
54.	**54.**	**VG**	**Anther: colour**		
PQ		**(c)**	white	Gendipred	1
			light yellow	Lanmissouri	2
			light green	Gendipros	3
55.	**55.**	**VG**	**Ovary: colour**		
PQ		**(c)**	white		1
			light yellow		2
			light green	Cotton Candy	3

8. EXPLANATIONS ON THE TABLE OF CHARACTERISTICS

8.1 Explanations covering several characteristics

Observations on plant and stem should be made when 50% of flowers have opened on the third raceme.

Characteristics containing the following key in the third column of the Table of Characteristics should be examined as indicated below:

a) Young stems are stems which are not lignified.

b) Observations on leaves should be made on fully expanded leaves.

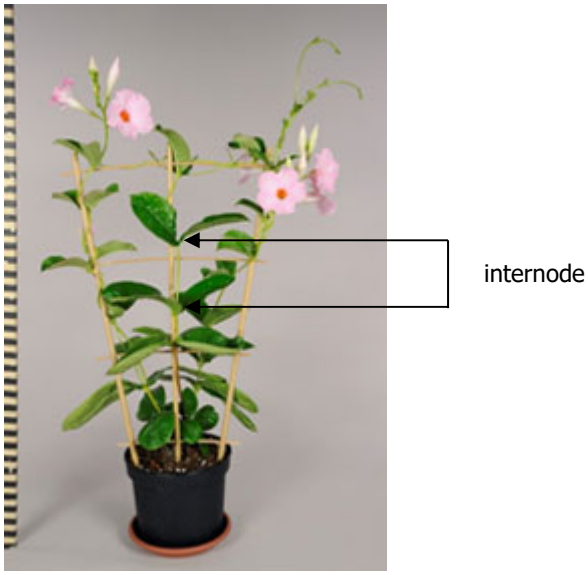
c) Observations on flowers and pedicel should be made on fully open flowers.

d) The main colour is the colour with the largest total surface area, the secondary colour (if present) is the colour with the second largest total surface area. In cases where areas of the main and secondary colour are too similar to reliably decide which colour has the largest area, the lightest colour is considered to be the main colour.

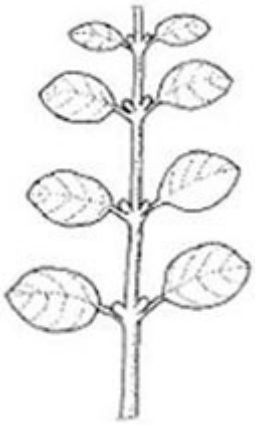
8.2 Explanations for individual characteristics

Ad. 5: Stem: length of internode

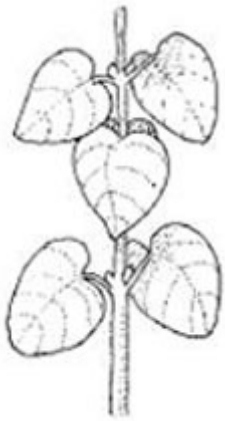
The length of the internode should be observed on the middle third of the plant.



Ad. 7: Leaf: arrangement



1
opposite



2
decussate

Ad. 14: Leaf blade: ratio length/width

1
low

2
medium

3
high

Ad. 16: Leaf blade: shape of apex

1
acuminate

2
acute

3
rounded

Ad. 17: Leaf blade: shape of base

1
acute

2
rounded

3
cordate

Ad. 21: Leaf blade: bulging between veins

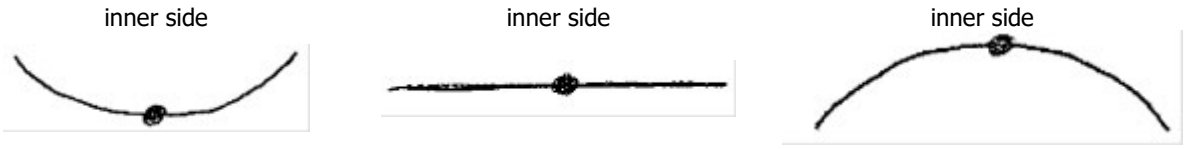
1
absent or very weak

2
weak

3
medium

4
strong

Ad. 25: Leaf blade: shape in profile



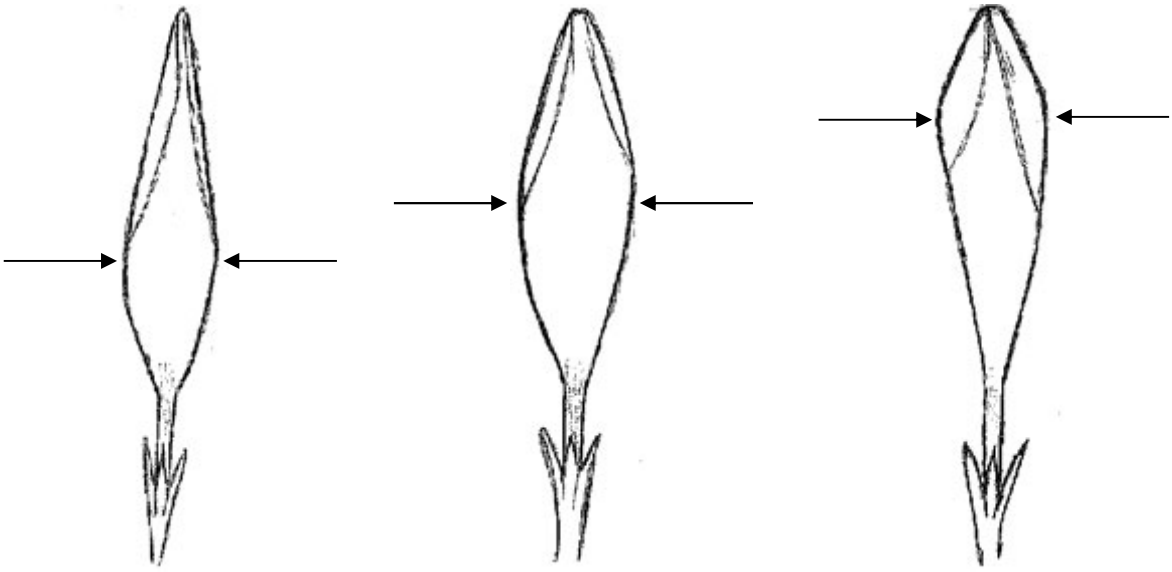
1
incurving

2
straight

3
recurving

Ad. 31: Flower bud: shape

Observations on bud should be made just before opening of the bud.



1
trullate

2
rhombic

3
obtrullate

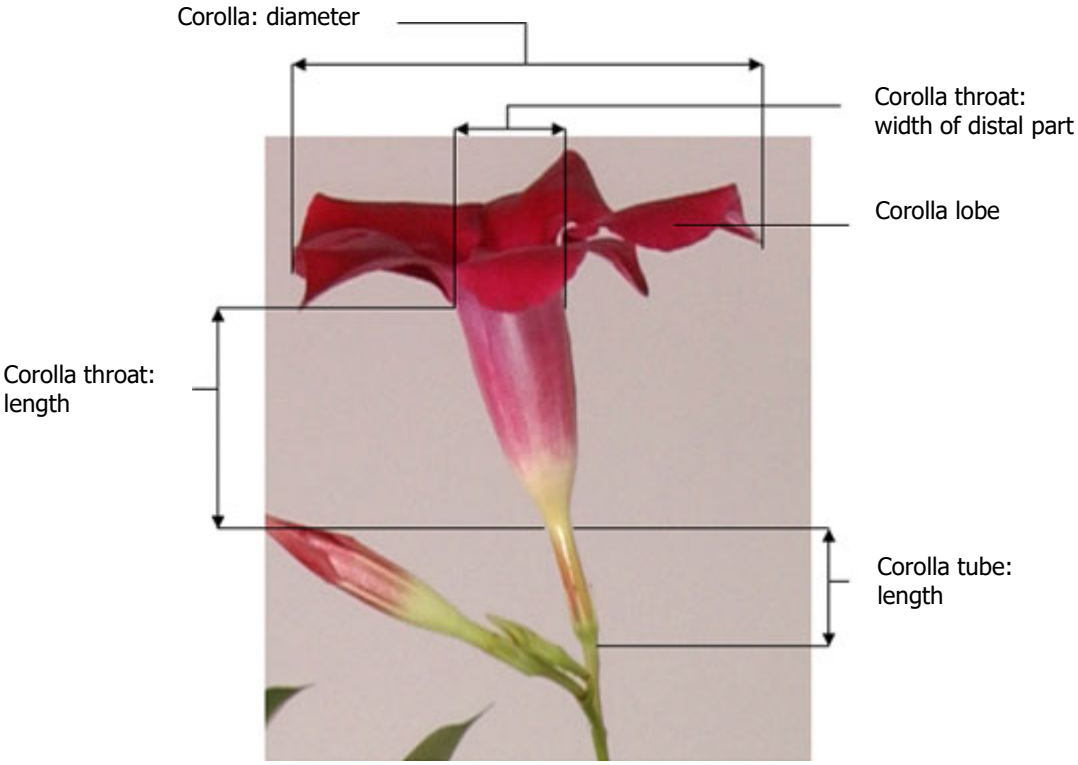
Ad. 32: Flower: type

Double varieties are varieties with petaloid staminodes.

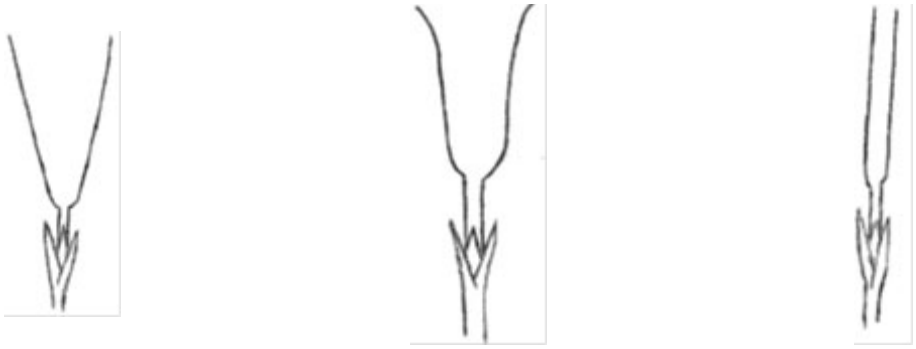
1
Single

2
double

Ad. 36: Corolla: diameter
Ad. 37: Corolla tube: length
Ad. 38: Corolla tube: colour of outer side
Ad. 39: Corolla throat: length
Ad. 40: Corolla throat: width of distal part



Ad. 41: Corolla throat: shape



1
funnel-shaped

2
campanulate

3
tubular

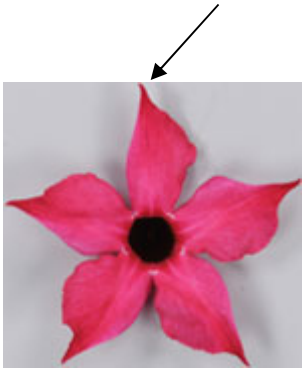
Ad. 46: Corolla lobe: symmetry

1
symmetric of slightly asymmetric

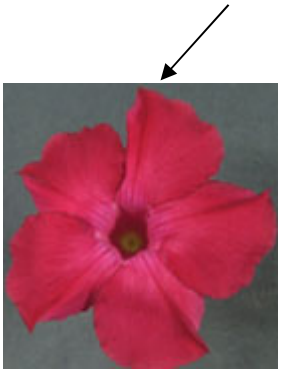
2
moderately asymmetric

3
strongly asymmetric

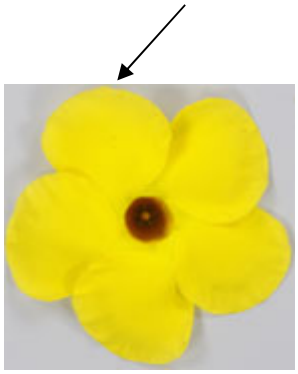
Ad. 47: Corolla lobe: shape of apex



1
acuminate



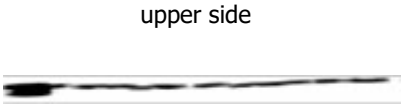
2
acute



3
rounded

Ad. 52: Corolla lobe: shape of distal part in longitudinal section

1
concave



2
straight

3
convex

9. LITERATURE

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10. TECHNICAL QUESTIONNAIRE

The Technical Questionnaire is available on the CPVO website under the following reference: CPVO-TQ/298/1