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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

ANTHURIUM *

UPOV Code(s): ANTHU

Anthurium Schott

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from Japan
to be considered by the
Technical Working Party for Ornamental Plants and Forest Trees
at its fifty-fourth session, to be held virtually,
from 2022-06-13 to 2022-06-17

Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Anthurium Schott	Anthurium	Anthurium	Flamingoblume	Anthurium

The purpose of these guidelines ("Test Guidelines") is to elaborate the principles contained in the General Introduction (document TG/1/3), and its associated TGP documents, into detailed practical guidance for the harmonized examination of distinctness, uniformity and stability (DUS) and, in particular, to identify appropriate characteristics for the examination of DUS and production of harmonized variety descriptions.

ASSOCIATED DOCUMENTS

These Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

* These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website (www.upov.int), for the latest information.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Anthurium* Schott.

2. Material Required

2.1 The competent authorities decide on the quantity and quality of the plant material required for testing the variety and when and where it is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must ensure that all customs formalities and phytosanitary requirements are complied with.

2.2 The material is to be supplied in the form of young plants.

2.3 The minimum quantity of plant material, to be supplied by the applicant, should be:

6 plants

2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.

2.5 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.

3. Method of Examination

3.1 Number of Growing Cycles

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

3.1.2 The testing of a variety may be concluded when the competent authority can determine with certainty the outcome of the test.

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”.

3.3 Conditions for Conducting the Examination

3.3.1 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.

3.3.2 Because daylight varies, color determinations made against a color 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 color 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 6 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

Additional tests, for examining relevant characteristics, may be established.

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in these Test Guidelines.

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 Test Guidelines are familiar with the recommendations contained in the General Introduction prior to making decisions regarding distinctness.

4.1.4 Number of Plants or Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 5 plants or parts of plants taken from each of 5 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 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. color 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

4.2.1 It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in these Test Guidelines:

4.2.2 These Test Guidelines have been developed for the examination of vegetatively propagated varieties. For varieties with other types of propagation, the recommendations in the General Introduction and document TGP/13 "Guidance for new types and species" Section 4.5 "Testing Uniformity" should be followed.

4.2.3 For the assessment of uniformity of vegetatively propagated varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 6 plants, 1 off-type is allowed.

4.3 Stability

4.3.1 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: height (characteristic 1)
(b) Inflorescence: number of spathes (characteristic 16)
(c) Spathe: length (characteristic 17)
(d) Spathe: main color of upper side (characteristic 25)
  Gr. 1: white
  Gr. 2: green
  Gr. 3: yellow
  Gr. 4: orange
  Gr. 5: pink
  Gr. 6: red
  Gr. 7: purple
  Gr. 8: brown
(e) Spathe: secondary color of upper side (characteristic 26)
  Gr. 1: white
  Gr. 2: green
  Gr. 3: yellow
  Gr. 4: orange
  Gr. 5: pink
  Gr. 6: red
  Gr. 7: purple
  Gr. 8: brown
(f) Spathe: distribution of secondary color of upper side (characteristic 27)
(g) Spadix: rolling (characteristic 36)
(h) Spadix: main color of basal part (characteristic 39)
(i) Spadix: main color of distal part (characteristic 41)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 “Examining Distinctness”.

6. Introduction to the Table of Characteristics

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

6.2 States of Expression and Corresponding Notes

6.2.1 States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.2.2 All relevant states of expression are presented in the characteristic.

6.2.3 Further explanation of the presentation of states of expression and notes is provided in document TGP/7 “Development of Test Guidelines”.

6.3 Types of Expression

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo-qualitative) is provided in the General Introduction.

6.4 Example Varieties

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

6.5 Legend

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1 2	**3 4**	**5 6**	**7**			
	Name of characteristics in English	**Nom du caractère en français**	**Name des Merkmals auf Deutsch**	**Nombre del carácter en español**		
	states of expression	types d'expression	Ausprägungsstufen	tipos de expresión		

1 Characteristic number

2 (*) Asterisked characteristic – see Chapter 6.1.2

3 Type of expression
QL Qualitative characteristic – see Chapter 6.3
QN Quantitative characteristic – see Chapter 6.3
PQ Pseudo-qualitative characteristic – see Chapter 6.3

4 Method of observation (and type of plot, if applicable)
MG, MS, VG, VS – see Chapter 4.1.5

5 (+) See Explanations on the Table of Characteristics in Chapter 8.2

6 (a)-(c) See Explanations on the Table of Characteristics in Chapter 8.1

7 Not applicable

7. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. (*) QN MG/MS/VG		**(+)**				
	Plant: height					
	very short					1
	very short to short					2
	short				ANTHDOSDOH	3
	short to medium					4
	medium				ANTHCAPBUK	5
	medium to tall					6
	tall				ANTHARYSIA	7
	tall to very tall					8
	very tall					9
2. (*) QN MG/MS/VG		**(+)**	**(a)**			
	Leaf blade: length					
	very short					1
	very short to short					2
	short				ANTHEPEDI	3
	short to medium					4
	medium				ANTHCAPBUK	5
	medium to long					6
	long				ANTHARYSIA	7
	long to very long					8
	very long					9
3. (*) QN MG/MS/VG		**(+)**	**(a)**			
	Leaf blade: width					
	very narrow					1
	very narrow to narrow					2
	narrow				RYN2009006	3
	narrow to medium					4
	medium				ANTHCAPBUK	5
	medium to broad					6
	broad				ANTHAQUIRE	7
	broad to very broad					8
	very broad					9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
4.	**(*)**	**QN MG/MS/VG**	**(+) (a)**				
		Leaf blade: ratio length/width					
		very low					1
		very low to low					2
		low				RIJN200565	3
		low to medium					4
		medium				ANTHCAMZIP	5
		medium to high					6
		high				ANTHDUBAQ	7
		high to very high					8
		very high					9
5.	**(*)**	**QN VG**	**(+) (a)**				
		Leaf blade: size of lobes					
		absent or very small				ANTHDOSDOH	1
		very small to small					2
		small				ANTHZUPAP	3
		small to medium					4
		medium				ANTHCOTBIK	5
		medium to large					6
		large				ANTHAQUIRE	7
		large to very large					8
		very large					9
6.		**PQ VG**	**(+) (a)**				
		Leaf blade: relative position of lobes at base					
		incurved but not touching				RIJN200449	1
		free				ANTHEPEDI	2
		touching				ANTHQUODO	3
		overlapping					4
		adpressed					5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
7.		**PQ VG**	**(+)** **(a)**				
		Leaf blade: angle of apex					
		acute					1
		approximately right angle					2
		obtuse					3
8.	**(*)**	**PQ VG**	**(+)** **(a)**				
		Leaf blade: differentiated tip					
		absent					1
		narrow acuminate					2
		medium acuminate					3
		broad acuminate					4
9.		**QN VG**	**(a)**				
		Leaf blade: intensity of green color of <u>upper</u> side					
		very light					1
		very light to light					2
		light				ANTHDOSDOH	3
		light to medium					4
		medium				ANTHBNZL	5
		medium to dark					6
		dark				ANTHARYSIA	7
		dark to very dark					8
		very dark					9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
10		**QN VG**	**(a)**				
		Leaf blade: blistering of <u>upper</u> side					
		absent or very weak				ANTHDOSDOH	1
		very weak to weak					2
		weak				ANTHCIMWI	3
		weak to medium					4
		medium				ANTHCAPBUK	5
		medium to strong					6
		strong				ANTHAHOTO	7
		strong to very strong					8
		very strong					9
11		**QN MG/MS/VG**	**(a)**				
		Petiole: length					
		very short					1
		very short to short					2
		short				ANTHEBENEX	3
		short to medium					4
		medium				ANTHBNZL	5
		medium to long					6
		long				ANTHAQUIRE	7
		long to very long					8
		very long					9
12	**(*)**	**QN MG/MS/VG**	**(b)**				
		Peduncle: length					
		very short					1
		very short to short					2
		short				ANTHEPEDI	3
		short to medium					4
		medium				ANTHCAPBUK	5
		medium to long					6
		long				ANTHAQUIRE	7
		long to very long					8
		very long					9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
13		**QN MG/MS/VG**	**(+) (b)**				
		Peduncle: thickness					
		very thin					1
		thin				ANTHEPEDI	2
		medium				ANTHCAPBUK	3
		thick				ANTHAQUIRE	4
		very thick					5
14		**QN VG**	**(b)**				
		Peduncle: anthocyanin coloration					
		absent or very weak				ANTHCAPBUK	1
		very weak to weak					2
		weak				ANTHBNZL	3
		weak to medium					4
		medium					5
		medium to strong					6
		strong				ANTHEBENEX	7
		strong to very strong					8
		very strong					9
15	**(*)**	**QN VG**	**(+) (b)**				
		Inflorescence: position in relation to foliage					
		below					1
		same level				ANTHBNEK	2
		slightly above				ANTHEPEDI	3
		above				ANTHEBENEX	4
16	**(*)**	**QL VG**	**(+) (b)**				
		Inflorescence: number of spathes					
		one				ANTHBNZL	1
		two				KURIN HEART	2

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
17	**(*)**	**QN MG/MS/VG**	**(+) (b)**				
		Spathe: length					
		very short					1
		very short to short					2
		short				ANTHEBENEX	3
		short to medium					4
		medium				ANTHEPEDI	5
		medium to long					6
		long				ANTHARYSIA	7
		long to very long					8
		very long					9
18	**(*)**	**QN MG/MS/VG**	**(+) (b)**				
		Spathe: width					
		very narrow					1
		very narrow to narrow					2
		narrow				RIJN200332	3
		narrow to medium					4
		medium				ANTHEPEDI	5
		medium to broad					6
		broad				ANTHAQUIRE	7
		broad to very broad					8
		very broad					9
19		**QN MS/VG**	**(+) (b)**				
		Spathe: ratio length/width					
		very low					1
		very low to low					2
		low				ANTHCAPBUK	3
		low to medium					4
		medium				ANTHAQUIRE	5
		medium to high					6
		high				ANTHEQIWIK	7
		high to very high					8
		very high					9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
20	**(*)**	**QN VG**	**(+) (b)**				
		Spathe: position of broadest part					
		at base				ANTHBNZL	1
		between base and middle				ANTHOLYL	2
		at middle				ANTHITOXO	3
21	**(*)**	**QN VG**	**(+) (b)**				
		Spathe: size of lobes					
		absent or very small				ANTHDOSDOH	1
		very small					2
		small				ANTHZUPAP	3
		small to medium					4
		medium				ANTHOLYL	5
		medium to large					6
		large				ANTHAHOTO	7
		large to very large					8
		very large					9
22		**PQ VG**	**(+) (b)**				
		Spathe: relative position of lobes at base					
		incurved but not touching					1
		free					2
		touching					3
		overlapping					4
		adpressed					5
23		**PQ VG**	**(+) (b)**				
		Spathe: shape of apex					
		acute					1
		obtuse					2
		rounded					3

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
24	**(*)**	**PQ**	**VG**	**(+)**	**(b)**				
		Spathe: differentiated tip							
		absent							1
		narrow acuminate							2
		medium acuminate							3
		broad acuminate							4
25	**(*)**	**PQ**	**VG**		**(b), (c)**				
		Spathe: main color of <u>upper</u> side							
		RHS Colour Chart (indicate reference number)							
26	**(*)**	**PQ**	**VG**		**(b), (c)**				
		Spathe: secondary color of <u>upper</u> side							
		RHS Colour Chart (indicate reference number)							
27	**(*)**	**PQ**	**VG**	**(+)**	**(b), (c)**				
		Spathe: distribution of secondary color of <u>upper</u> side							
		none							1
		at basal zone							2
		at central zone							3
		at apex							4
		at marginal zone							5
		along veins							6
		at apex and along veins							7
		throughout							8
28	**(*)**	**PQ**	**VG**	**(+)**					
		Spathe: pattern of secondary color of <u>upper</u> side							
		solid							1
		flushed							2
		spotted							3
		irregular							4

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
29		**PQ VG**	**(b), (c)**				
		Spathe: main color of <u>lower</u> side					
		RHS Colour Chart (indicate reference number)					
30		**QN VG**	**(b)**				
		Spathe: glossiness on the upper side					
		absent or very weak				ARINOS	1
		very weak to weak					2
		weak				KURIN HEART	3
		weak to medium					4
		medium				ANTHARYSIA	5
		medium to strong					6
		strong				ANTHBNZL	7
		strong to very strong					8
		very strong					9
31	**(*)**	**QN VG**	**(b)**				
		Spathe: blistering					
		absent or very weak				ANTHDOSDOH	1
		very weak to weak					2
		weak				ANTHCAPBUK	3
		weak to medium					4
		medium				ANTHEPEDI	5
		medium to strong					6
		strong				ANTHBNZL	7
		strong to very strong					8
		very strong					9
32		**QN VG**	**(+)** **(b)**				
		Spathe: shape in cross section of middle zone					
		concave					1
		flat					2
		convex					3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
33		**QN** **VG**	**(+)** **(b)**				
		Spathe: angle of distal part to peduncle					
		acute					1
		right angle					2
		obtuse					3
34	**(*)**	**QN** **MG/MS/VG**	**(+)** **(b)**				
		Spadix: length					
		very short					1
		very short to short					2
		short				ANTHEPEDI	3
		short to medium					4
		medium				ANTHBNZL	5
		medium to long					6
		long				ANTHAQUIRE	7
		long to very long					8
		very long					9
35		**QN** **MG/MS/VG**	**(+)** **(b)**				
		Spadix: thickness					
		very thin					1
		very thin to thin					2
		thin				RYN2009006	3
		thin to medium					4
		medium				ANTHBNZL	5
		medium to thick					6
		thick					7
		thick to very thick					8
		very thick				ANTHBAQEP	9
36	**(*)**	**QL** **VG**	**(+)** **(b)**				
		Spadix: rolling					
		absent				ANTHBNZL	1
		present				ARINOS	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
37	**(*)**	**QN VG**	**(+)**	**(b)**			
		<u>Excluding varieties with Spadix: rolling: present:</u> Spadix: curvature of longitudinal axis					
		strongly incurved					1
		weakly incurved					2
		straight					3
		weakly recurved					4
		strongly recurved					5
38		**QN VG**	**(+)**	**(b)**			
		Spadix: tapering towards the tip					
		absent or very weak					1
		very weak to weak					2
		weak					3
		weak to medium					4
		medium					5
		medium to strong					6
		strong					7
		strong to very strong					8
		very strong					9
39	**(*)**	**PQ VG**	**(+)**	**(b), (c)**			
		Spadix: main color of <u>basal</u> part					
		whitish					1
		green					2
		yellow					3
		orange					4
		pink					5
		red					6
		red purple					7
		purple					8
		brown					9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
40		**PQ VG**	**(+)** **(b), (c)**				
		Spadix: main color of <u>middle</u> part (only if different from basal and distal part)					
		white					1
		green					2
		yellow					3
		orange					4
		pink					5
		red					6
		red purple					7
		purple					8
		brown					9
41	**(*)**	**PQ VG**	**(+)** **(b), (c)**				
		Spadix: main color of <u>distal</u> part					
		white					1
		green					2
		yellow					3
		orange					4
		pink					5
		red					6
		red purple					7
		purple					8
		brown					9
42		**PQ VG**	**(+)** **(c)**				
		Spadix: main color of <u>basal</u> part after dehiscence of anthers					
		whitish					1
		green					2
		yellow					3
		orange					4
		pink					5
		red					6
		red purple					7
		purple					8
		brown					9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
43	**PQ VG**	**(+) (c)**				
	Spadix: main color of <u>distal</u> part after dehiscence of anthers					
	white					1
	green					2
	yellow					3
	orange					4
	pink					5
	red					6
	red purple					7
	purple					8
	brown					9

8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

All observations should be made on full grown plants with fully developed flowers.

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

(a) Observations should be made on largest fully developed leaf.

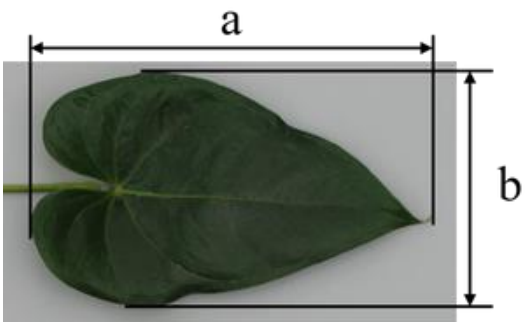
(b) Observations should be made when the basal 1/3 to 2/3 of the flowers spadix are developed and feel rough.

(c) The main color is the color with the largest surface area, the secondary color is the color with the second largest surface area, and the tertiary color is the color with the third largest surface area. In cases where the area of the main and secondary color are too similar to reliably decide which color has the largest area, the darker color is considered to be the main color. In cases where the area of the secondary and tertiary color are too similar to reliably decide which color has the second largest area, the darker color is considered to be the secondary color.

8.2 Explanations for individual characteristics

Ad. 1: Plant: height

Ad. 2: Leaf blade: length



a= Leaf blade: length
b= Leaf blade: width

Ad. 3: Leaf blade: width

See Ad. 2

Ad. 4: Leaf blade: ratio length/width

3
low

5
medium

7
high

Ad. 5: Leaf blade: size of lobes

Observation should be made on size of lobes relative to whole size of leaf blade.

1
absent or very small

3
small

5
medium

7
large

Ad. 6: Leaf blade: relative position of lobes at base

1
incurved but not touching

2
free

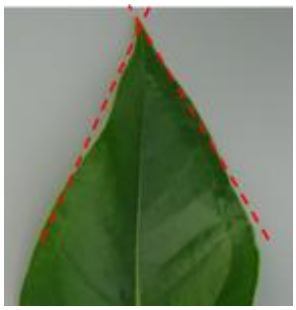
3
touching

4
overlapping

5
adpressed

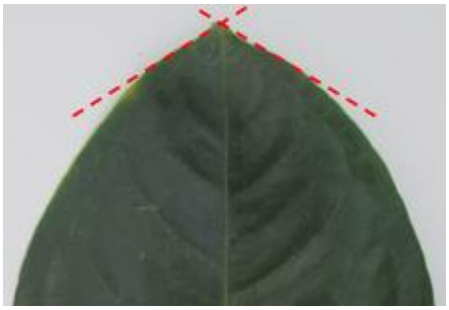
Ad. 7: Leaf blade: angle of apex

The general shape of the apex should be observed.
If present, the tip should be excluded from observation.



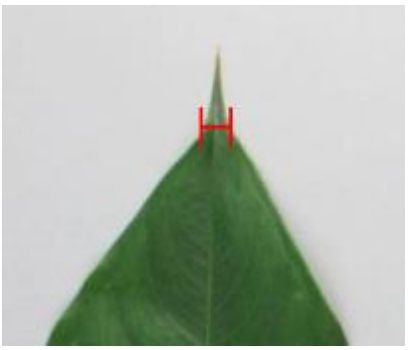
1
acute

2
approximately right angle

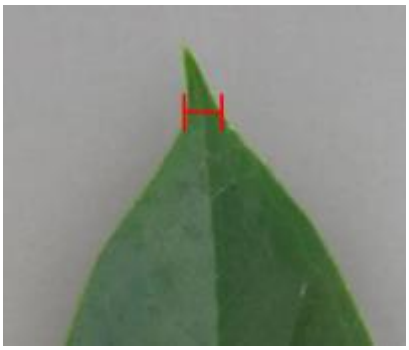


3
obtuse

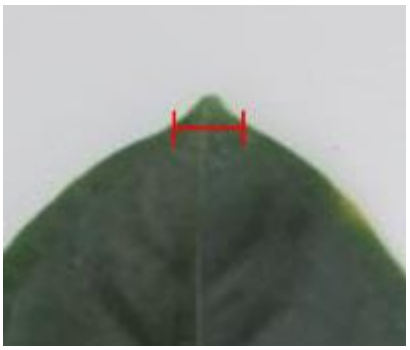
Ad. 8: Leaf blade: differentiated tip



2
narrow acuminate



3
medium acuminate



4
broad acuminate

Ad. 13: Peduncle: thickness

Observation should be made at the middle of the peduncle.

Ad. 15: Inflorescence: position in relation to foliage

1
below

2
same level

3
slightly above

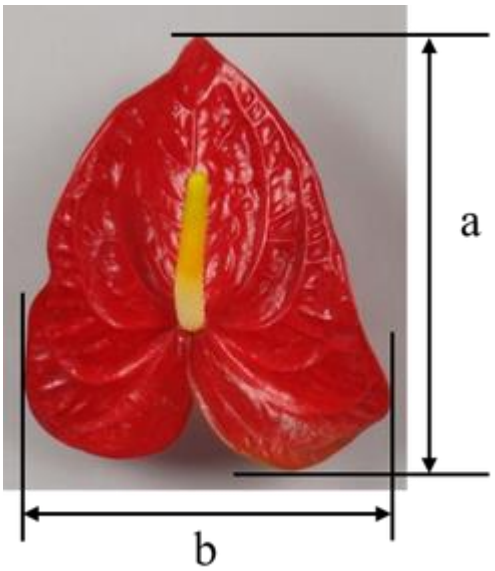
4
above

Ad. 16: Inflorescence: number of spathes

1
one

2
two

Ad. 17: Spathe: length



a= Spathe: length
b= Spathe: width

Ad. 18: Spathe: width

See Ad. 17

Ad. 19: Spathe: ratio length/width

3
low

5
medium

7
high

Ad. 20: Spathe: position of broadest part

1
at base

2
between base and middle

3
at middle

Ad. 21: Spathe: size of lobes

Observation should be made on size of lobes relative to whole size of spathe.

1
absent or very small

3
small

5
medium

7
large

Ad. 22: Spathe: relative position of lobes at base

See Ad. 6

Ad. 23: Spathe: shape of apex

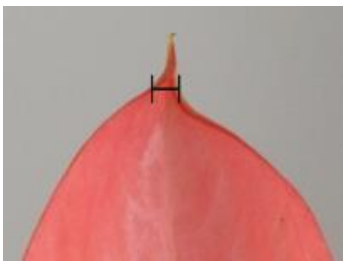
If present, the tip should be excluded from observation.

1
acute

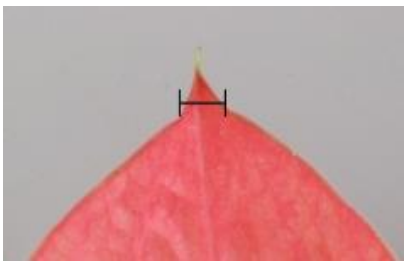
2
obtuse

3
rounded

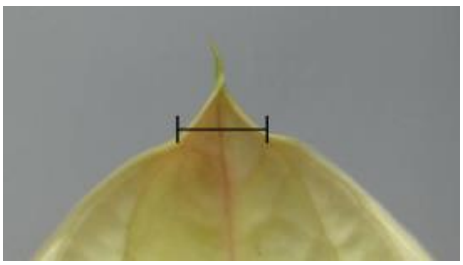
Ad. 24: Spathe: differentiated tip



2
narrow acuminate

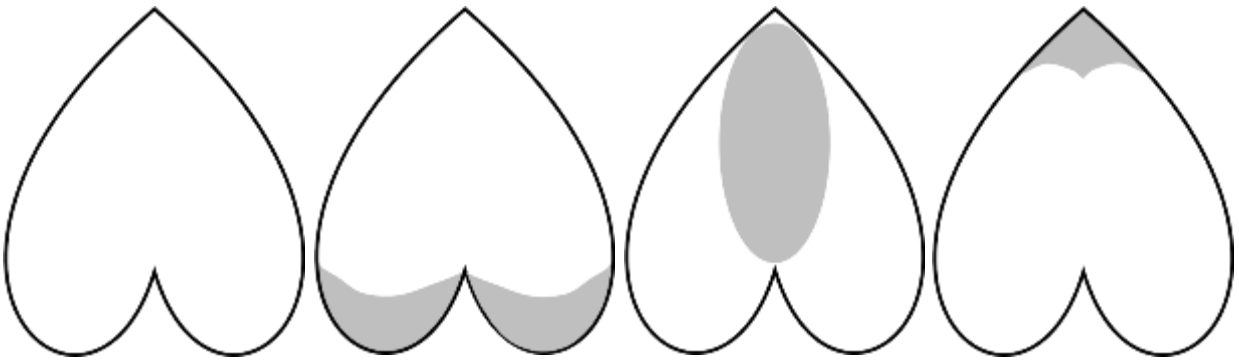


3
medium acuminate



4
broad acuminate

Ad. 27: Spathe: distribution of secondary color of upper side

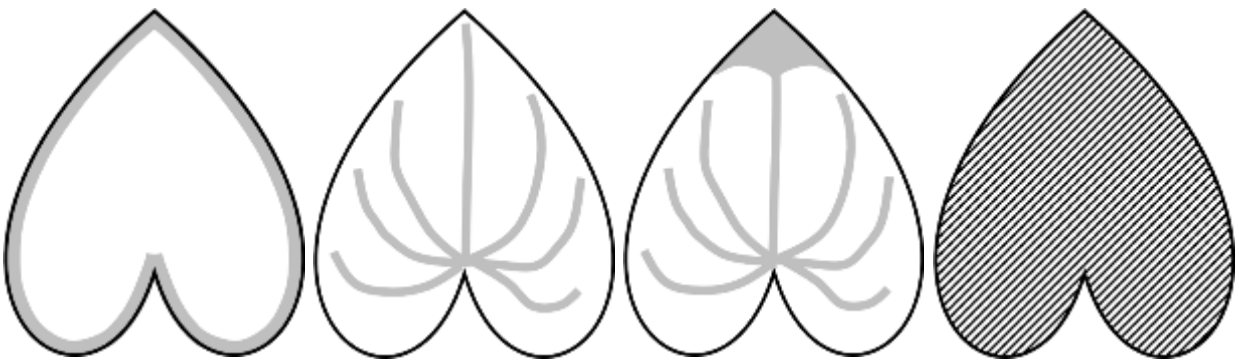


1
none

2
at basal zone

3
at central zone

4
at apex



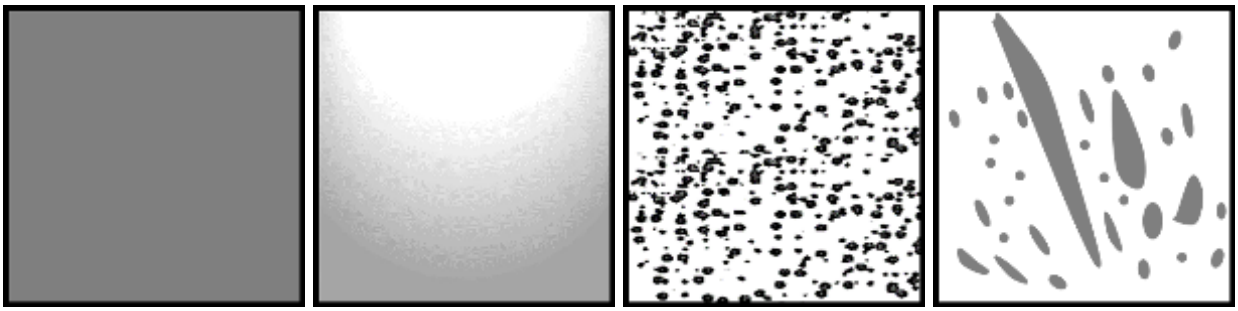
5
at marginal zone

6
along veins

7
at apex and along veins

8
throughout

Ad. 28: Spathe: pattern of secondary color of upper side



1
solid

2
flushed

3
spotted

4
irregular

Ad. 32: Spathe: shape in cross section of middle zone

1
concave

2
flat

3
convex

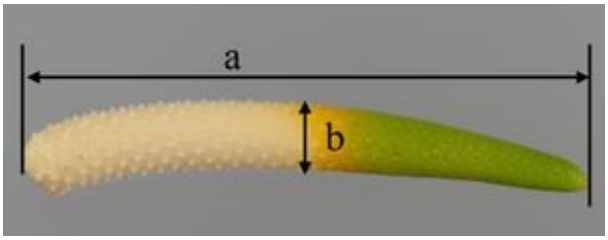
Ad. 33: Spathe: angle of distal part to peduncle

1
acute

2
right angle

3
obtuse

Ad. 34: Spadix: length



a= length
b= thickness

Ad. 35: Spadix: thickness

See Ad. 34

Observation should be made at the middle of the spadix.

Ad. 36: Spadix: rolling

1
absent

9
present

Ad. 37: Excluding varieties with Spadix: rolling: present: Spadix: curvature of longitudinal axis

1
strongly incurved

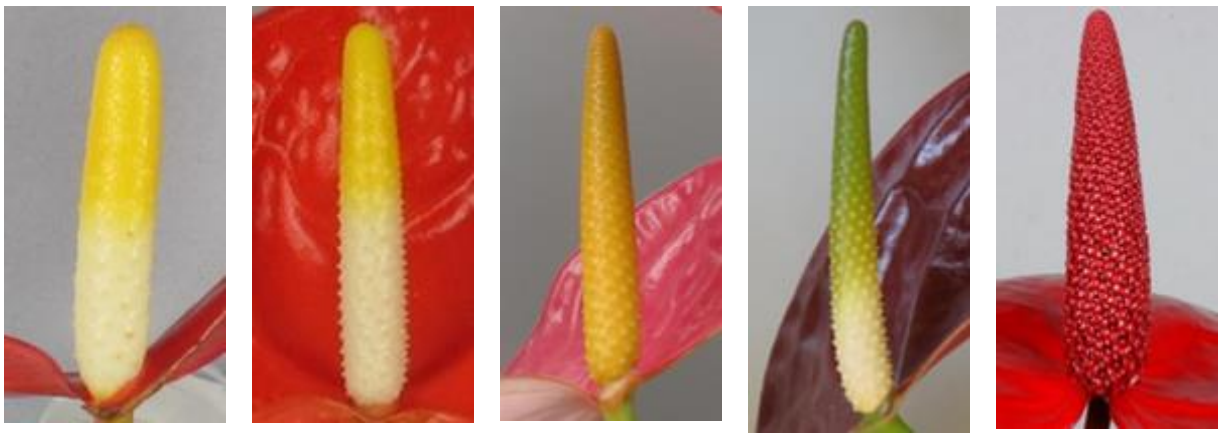
2
weakly incurved

3
straight

4
weakly recurved

5
strongly recurved

Ad. 38: Spadix: tapering towards the tip



1
absent or very weak

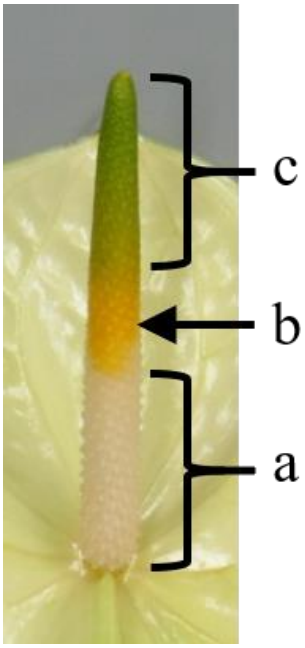
2
weak

3
medium

4
strong

5
very strong

Ad. 39: Spadix: main color of basal part



a= main color of basal part (Char. 39)

b= main color of middle part (only if different from basal part and distal part) (Char. 40)

c= main color of distal part (Char. 41)

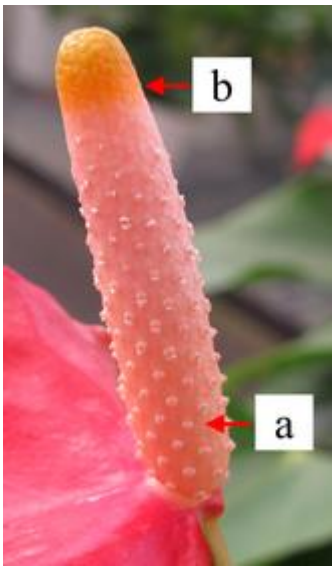
Ad. 40: Spadix: main color of middle part (only if different from basal and distal part)

See Ad. 39

Ad. 41: Spadix: main color of distal part

See Ad. 39

Ad. 42: Spadix: main color of basal part after dehiscence of anthers



Observations should be made when basal 1/3 - 2/3 of anthers on spadix are dehisced.
Some modern varieties don't show these signs at all. In those cases, observation should be made when the flowers at the top of spadix are developed and feel rough.

a=Spadix: main color of basal part after dehiscence of anthers (Char. 42)

b=Spadix: main color of distal part after dehiscence of anthers (Char. 43)

Ad. 43: Spadix: main color of distal part after dehiscence of anthers

See Ad. 43

9. Literature

Tsukamoto, Y., 1994: The Grand Dictionary of Horticulture (Volume 1), Shogakukan Inc., Chiyoda-ku, Tokyo, JP, pp. 187-192

Brickel, C., 2003: A to Z Encyclopedia of Garden Plants, Seibundo Shinkosha Publishing Co. Ltd., Bunkyo-ku, Tokyo, JP, pp. 123, translated by Yokoi M et al.

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

	Application date: (not to be filled in by the applicant)

TECHNICAL QUESTIONNAIRE
to be completed in connection with an application for plant breeders' rights

1. Subject of the Technical Questionnaire

1.1	Botanical name	*Anthurium* Schott
1.2	Common name	Anthurium

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	
Breeder (if different from applicant)	

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

#4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]

(please state parent variety)

(……..……..…) x (……..……..…)

female parent male parent

(b) partially known cross [ ]

(please state known parent variety(ies))

(……..……..…) x (……..……..…)

female parent male parent

(c) unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

4.1.3 Discovery and development [ ]
(please state where and when discovered and how developed)

4.1.4 Other [ ]
(Please provide details)

Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

4.2 Method of propagating the variety

4.2.1 Vegetative propagation

(a) *In vitro* propagation [ ]
(b) Other (state method) [ ]

4.2.2 Other [ ]
(Please provide details)

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

	Characteristics	Example Varieties	Note
5.1 (1)	**Plant: height**		
	very short		1 [ ]
	very short to short		2 [ ]
	short	ANTHDOSDOH	3 [ ]
	short to medium		4 [ ]
	medium	ANTHCAPBUK	5 [ ]
	medium to tall		6 [ ]
	tall	ANTHARYSIA	7 [ ]
	tall to very tall		8 [ ]
	very tall		9 [ ]
5.2 (2)	**Leaf blade: length**		
	very short		1 [ ]
	very short to short		2 [ ]
	short	ANTHEPEDI	3 [ ]
	short to medium		4 [ ]
	medium	ANTHCAPBUK	5 [ ]
	medium to long		6 [ ]
	long	ANTHARYSIA	7 [ ]
	long to very long		8 [ ]
	very long		9 [ ]
5.3 (16)	**Inflorescence: number of spathes**		
	one	ANTHBNZL	1 [ ]
	two	KURIN HEART	2 [ ]

	Characteristics	Example Varieties	Note
5.4 (17)	**Spathe: length**		
	very short		1 [ ]
	very short to short		2 [ ]
	short	ANTHEBENEX	3 [ ]
	short to medium		4 [ ]
	medium	ANTHEPEDI	5 [ ]
	medium to long		6 [ ]
	long	ANTHARYSIA	7 [ ]
	long to very long		8 [ ]
	very long		9 [ ]
5.5 (18)	**Spathe: width**		
	very narrow		1 [ ]
	very narrow to narrow		2 [ ]
	narrow	RIJN200332	3 [ ]
	narrow to medium		4 [ ]
	medium	ANTHEPEDI	5 [ ]
	medium to broad		6 [ ]
	broad	ANTHAQUIRE	7 [ ]
	broad to very broad		8 [ ]
	very broad		9 [ ]
5.6(i) (25)	**Spathe: main color of <u>upper</u> side**		
	RHS Colour Chart (indicate reference number)		
5.6(ii) (25)	**Spathe: main color of <u>upper</u> side**		
	white		1 [ ]
	green		2 [ ]
	yellow		3 [ ]
	orange		4 [ ]
	pink		5 [ ]
	red		6 [ ]
	purple		7 [ ]
	brown		8 [ ]
	other (please indicate)		[ ]

	Characteristics	Example Varieties	Note
5.7(i) (26)	**Spathe: secondary color of <u>upper</u> side**		
	RHS Colour Chart (indicate reference number)		
5.7(ii) (26)	**Spathe: secondary color of <u>upper</u> side**		
	white		1 [ ]
	green		2 [ ]
	yellow		3 [ ]
	orange		4 [ ]
	pink		5 [ ]
	red		6 [ ]
	purple		7 [ ]
	brown		8 [ ]
	other (please indicate)		[ ]
5.8 (27)	**Spathe: distribution of secondary color of <u>upper</u> side**		
	none		1 [ ]
	at basal zone		2 [ ]
	at central zone		3 [ ]
	at apex		4 [ ]
	at marginal zone		5 [ ]
	along veins		6 [ ]
	at apex and along veins		7 [ ]
	throughout		8 [ ]
5.9 (36)	**Spadix: rolling**		
	absent	ANTHBNZL	1 [ ]
	present	ARINOS	9 [ ]
5.10 (39)	**Spadix: main color of <u>basal</u> part**		
	whitish		1 [ ]
	green		2 [ ]
	yellow		3 [ ]
	orange		4 [ ]
	pink		5 [ ]
	red		6 [ ]
	red purple		7 [ ]
	purple		8 [ ]
	brown		9 [ ]

	Characteristics	Example Varieties	Note
5.11 (41)	**Spadix: main color of <u>distal</u> part**		
	white		1 [ ]
	green		2 [ ]
	yellow		3 [ ]
	orange		4 [ ]
	pink		5 [ ]
	red		6 [ ]
	red purple		7 [ ]
	purple		8 [ ]
	brown		9 [ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

6. Similar varieties and differences from these varieties

Please use the following table and box for comments to provide information on how your candidate variety differs from the variety (or varieties) which, to the best of your knowledge, is (or are) most similar. This information may help the examination authority to conduct its examination of distinctness in a more efficient way.

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example	*Plant: height*	*high*	*medium*

Comments:

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

[#]7. Additional information which may help in the examination of the variety

7.1 In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?

Yes [ ] No [ ]

(If yes, please provide details)

7.2 Are there any special conditions for growing the variety or conducting the examination?

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

A representative color photograph of the variety displaying its main distinguishing feature(s), should accompany the Technical Questionnaire. The photograph will provide a visual illustration of the candidate variety which supplements the information provided in the Technical Questionnaire.
The key points to consider when taking a photograph of the candidate variety are:
- Indication of the date and geographic location
- Correct labeling (breeder's reference)
- Good quality printed photograph (minimum 10 cm x 15 cm) and/or sufficient resolution electronic format version (minimum 960 x 1280 pixels)"

Further guidance on providing photographs with the Technical Questionnaire is available in document TGP/7 "Development of Test Guidelines", Guidance Note 35 (http://www.upov.int/tgp/en/).
[The link provided may be deleted by members of the Union when developing authorities' own test guidelines.]

- Resistance to pests and diseases

- (i) Use of variety/utilisation de la variété/Verwendung der Sorte
  - cut flower [ ]
  - pot plant [ ]

- (ii) Other conditions

Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

8. Authorization for release

(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

If the answer to (b) is yes, please attach a copy of the authorization.

9. Information on plant material to be examined or submitted for examination

9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.

9.2 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 the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:

(a)	Microorganisms (e.g. virus, bacteria, phytoplasma)	Yes [ ]	No [ ]
(b)	Chemical treatment (e.g. growth retardant, pesticide)	Yes [ ]	No [ ]
(c)	Tissue culture	Yes [ ]	No [ ]
(d)	Other factors	Yes [ ]	No [ ]

Please provide details for where you have indicated “yes”.

.....

10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:

Applicant’s name

Signature Date

[End of document]