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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

CAMPANULA

UPOV Code: CAMPA

Campanula L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from the United Kingdom

to be considered by the

Technical Working Party for Ornamental Plants and Forest Trees
at its forty-sixth session, to be held in Melbourne, Australia, from April 22 to 26, 2013

Alternative Names:[*]

Botanical name	*English*	*French*	*German*	*Spanish*
Campanula L.	Campanula, Bell flower	Campanule	Glockenblume	Campánula

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 *Campanula* L.

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:

10 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

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”.

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 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

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 / 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 second 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. 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 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 10 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: growth habit (characteristic 1)
(b) Plant: height (characteristic 2)
(c) Flower: attitude (characteristic 21)
(d) Flower: type (characteristic 22)
(e) Corolla: number of whorls (characteristic 27)
(f) Corolla: main color of outer side (characteristic 30)
Gr. 1: white
Gr. 2: pink
Gr. 3: red purple
Gr. 4: purple
Gr. 5: blue
(g) Corolla: main color of inner side (characteristic 34)
Gr. 1: white
Gr. 2: pink
Gr. 3: red purple
Gr. 4: purple
Gr. 5: blue

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 In the case of qualitative and pseudo-qualitative characteristics (see Chapter 6.3), 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

6.2.3 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

(*)	Asterisked characteristic	– see Chapter 6.1.2
QL	Qualitative characteristic	– see Chapter 6.3
QN	Quantitative characteristic	– see Chapter 6.3
PQ	Pseudo-qualitative characteristic	– see Chapter 6.3
MG, MS, VG, VS		– see Chapter 4.1.5
(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/Tableau des caractères/Merkmalstabelle/Tabla de caracteres

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. **(*)** **(+)**	**VG**	**Plant: growth habit**					
PQ	**(a)**	upright				La Bello	1
		semi-upright				Sarastro	2
		spreading				PKMP05	3
		semi-trailing				Blue Rivulet	4
		trailing					5
2. **(*)** **(+)**	**VG/ MG /MS**	**Plant: height**					
QN	**(a)**	extremely short					1
		very short				Samantha	3
		short				Caroline	5
		medium				Sarastro	7
		tall				Kent Belle	9
		very tall					11
		extremely tall					13
3. **(+)**	**VG/ MG /MS**	**Plant: width**					
QN	**(a)**	very narrow					1
		narrow				Sarastro	3
		medium				PKMP05	5
		broad					7
		very broad				Blue Rivulet	9
4. **(+)**	**VG**	**Plant: density**					
QN	**(a)**	very sparse					1
		sparse				Caroline	3
		medium				Samantha	5
		dense				PKMP05	7
		very dense					9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
5.	**VG**	**Stem: color**					
(+)							
PQ	**(a)**	yellow green				Blue Eyed Blonde	1
		light green				PKMP05	2
		medium green				Sarastro	3
		dark green					4
		grey green					5
		green tinged with red purple				Blue Rivulet	6
		red purple				Silver Bells	7
6. **(*)**	**MG /MS**	**Leaf: petiole**					
QN	**(b)**	absent or very short				Caroline	1
		short				Kent Belle	3
		medium				Samantha	5
		long				PKMP05	7
		very long				Blue Rivulet	9
7. **(*)**	**MG /MS**	**Leaf blade: length**					
QN	**(b)**	very short				PKMP05	1
		short					3
		medium				Blue Rivulet	5
		long				Caroline	7
		very long				Elizabeth	9
8. **(*)**	**MG /MS**	**Leaf blade: width**					
QN	**(b)**	very narrow					1
		narrow				Blue Eyed Blonde	3
		medium				Caroline	5
		broad				Pink Octopus	7
		very broad				Sarastro	9
9. **(*)** **(+)**	**MG /MS**	**Leaf blade: length/width ratio**					
QN	**(b)**	low				Caroline	3
		medium					5
		high					7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
10. **(+)**	**VG**	**Leaf blade: position of broadest part**					
QN	**(b)**	strongly towards base					1
		moderately towards base					2
		at middle					3
		moderately towards apex					4
11. **(+)**	**VG**	**Leaf blade: shape of apex**					
PQ	**(b)**	acuminate					1
		acute					2
		obtuse					3
12. **(+)**	**VG**	**Leaf blade: shape of base**					
PQ	**(b)**	linear					1
		acute					2
		obtuse					3
		rounded					4
		truncate					5
		cordate					6
13. **(*)**	**VG**	**Leaf blade: variegation**					
QL	**(b)**	absent				Pink Octopus	1
		present				Kifu	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
14. (*)	**VG**	**Leaf blade: main color**					
PQ	**(b)**	whitish					1
	(d)	yellow				Kifu	2
		yellow green				Blue Eyed Blonde	3
		light green				Caroline	4
		medium green				Sarastro	5
		dark green					6
		grey green					7
		green tinged with purplish red				BlueRivulet	8
		purplish red				Silver Bells	9
15.	**VG**	**Leaf blade: rugosity**					
QN	**(b)**	absent or very weak					1
		weak				Sarastro	2
		medium					3
		strong				Elizabeth	4
		very strong					5
16.	**VG**	**Leaf blade: glossiness**					
QN	**(b)**	absent or very weak				Caroline	1
		weak					2
		medium				Elizabeth	3
		strong				Pink Octopus	4
17. (*)	**VG**	**Leaf blade: pubescence**					
QN	**(b)**	absent or very sparse				Elizabeth	1
		sparse				Caroline	2
		medium					3
		dense					4
		very dense					5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
18. **(+)**	**VG**	**Leaf blade: indentations of margin**					
QN	**(b)**	absent or very few					1
		few					2
		medium				Caroline	3
		many				Elizabeth	4
		very many				Sarastro	5
19. **(+)**	**VG**	**Leaf blade: depth of indentations of margin**					
QN	**(b)**	very shallow				Caroline	1
		shallow				Elizabeth	2
		medium					3
		deep					4
		very deep				Pink Octopus	5
20. **(+)**	**VG**	**Leaf blade: undulation of margin**					
QN	**(b)**	absent or very weak					1
		weak				Caroline	2
		medium				Elizabeth	3
		strong					4
		very strong					5
21. **(*)** **(+)**	**VG**	**Flower: attitude**					
QN	**(c)**	upwards				Samantha	1
		slightly outwards				PKMP05	2
		strongly outwards				Blue Eyed Blonde	3
		slightly downwards				Pink Octopus	4
		strongly downwards				Sarastro	5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
22. **(*)** **(+)**	**VG**	**Flower: type**					
PQ	**(c)**	tubular				Sarastro	1
		campanulate					2
		rotate				Samantha	3
		stellate (with strap-shaped lobes)				Pink Octopus	4
23. **(*)** **(+)**	**VG**	**Flower: profile in longitudinal section**					
PQ	**(c)**	converging					1
		parallel					2
		slightly diverging					3
		moderately diverging					4
		strongly diverging					5
		horizontal					6
		reflexing					7
24. **(*)** **(+)**	**VG**	**Calyx: petaloid lobes**					
QL	**(c)**	absent				Kent Belle	1
		present				Pantaloons	9
25. **(+)**	**VG**	**<u>Only varieties with petaloid calyx lobes</u>: Calyx lobe: color of outer side**					
PQ	**(c)**	RHS Colour Chart (indicate reference number)					
26. **(+)**	**VG**	**Calyx: position of lobes**					
QN	**(c)**	adpressed to corolla					1
		moderately spreading					3
		horizontal					5
		moderately reflexed					7
		strongly reflexed					9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
27. (*) (+)	**VG**	**Corolla: number of whorls**					
QN	**(c)**	very few				Sarastro	1
		few					2
		medium					3
		many				La Bello	4
		very many					5
28. (*) (+)	**MG /MS**	**Corolla: length**					
QN	**(c)**	very short				Blue Rivulet	1
		short				Jelly Bells	3
		medium				Caroline	5
		long					7
		very long				Sarastro	9
29. (*) (+)	**MG /MS**	**Corolla: diameter**					
QN	**(c)**	very small					1
		small				PKMP05	3
		medium				Sarastro	5
		large				Blue Eyed Blonde	7
		very large				Pink Octopus	9
30. (*)	**VG**	**Corolla: main color of outer side**					
PQ	**(c)** **(d)**	RHS Colour Chart (indicate reference number)					
31. (*)	**VG**	**Corolla: secondary color of outer side**					
PQ	**(c)** **(d)**	RHS Colour Chart (indicate reference number)					

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
32. **(+)**	**VG**	**Corolla: distribution of secondary color of outer side**					
PQ	**(c)**	none					1
	(d)	distal quarter					2
		basal three quarters					3
		basal half					4
		basal quarter					5
		at base					6
		marginal zone					7
		midrib					8
		midrib and marginal zone					9
		throughout					10
33. **(+)**	**VG**	**Corolla: pattern of secondary color of outer side**					
PQ	**(c)**	solid or nearly solid					1
	(d)	flushed					2
		striped					3
		small spots					4
		medium spots					5
34. **(*)**	**VG**	**Corolla: main color of inner side**					
PQ	**(c)** **(d)**	RHS Colour Chart (indicate reference number)					
35. **(*)**	**VG**	**Corolla: secondary color of inner side**					
PQ	**(c)** **(d)**	RHS Colour Chart (indicate reference number)					

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
36. **(+)**	**VG**	**Corolla: distribution of secondary color of inner side**					
PQ	**(c)**	none					1
	(d)	distal quarter					2
		basal three quarters					3
		basal half					4
		basal quarter					5
		at base					6
		marginal zone					7
		midrib					8
		longitudinal zone (lobe sinus to base)					9
		throughout					10
37. **(+)**	**VG**	**Corolla: pattern of secondary color of inner side**					
PQ	**(c)**	solid or nearly solid					1
	(d)	flushed					2
		striped					3
		small spots					4
		medium spots					5
38. **(*)**	**VG**	**Corolla: pubescence of inner side**					
QL	**(c)**	absent					1
		present					9
39. **(+)**	**MG /MS**	**Corolla: length of fused part**					
QN	**(c)**	absent or extremely short				Pink Octopus	1
		very short					3
		short				Caroline	5
		medium				Kent Belle	7
		long					9
		very long				Elizabeth	11
		extremely long				Sarastro	13

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
40. (*) (+)	**VG**	**Corolla: length of fused part compared to total corolla length**					
QN	**(c)**	absent or very short					1
		short					3
		medium					5
		long					7
		very long					9
41. (+)	**MG /MS**	**Corolla: diameter of fused part**					
QN	**(c)**	very small				PKMP05	1
		small				Samantha	3
		medium				Elizabeth	5
		large					7
		very large				Blue Eyed Blonde	9
42. (*) (+)	**VG**	**Corolla lobe: shape**					
PQ	**(c)**	triangular					1
		ovate					2
		elliptic					3
		oblong					4
43. (*)	**MG /MS**	**Corolla lobe: length**					
QN	**(c)**	very short				Jelly Bells	1
		short				PKMP05	3
		medium				Blue Eyed Blonde	5
		long					7
		very long					9
		extremely long				Pink Octopus	11

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
44. **(+)**	**MG /MS**	**Corolla lobe: width**					
QN	**(c)**	very narrow				Blue Rivulet	1
		narrow				Caroline	3
		medium				Kent Belle	5
		broad				La Bello	7
		very broad				Blue Eyed Blonde	9
45. **(*)** **(+)**	**VG**	**Corolla lobe: curvature**					
QN	**(c)**	very weakly incurving					1
		straight					2
		very weakly reflexing					3
		weakly reflexing					4
		moderately reflexing					5
		strongly reflexing					6
		very strongly reflexing					7
46. **(+)**	**VG**	**Corolla lobe: profile in cross section**					
QN	**(c)**	strongly concave					1
		moderately concave					2
		weakly concave					3
		flat					4
		weakly convex					5
		moderately convex					6
47. **(+)**	**VG**	**Corolla lobe: shape of apex**					
PQ	**(c)**	acuminate					1
		acute					2
		obtuse					3
		rounded					4
		truncate					5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
48.	**VG**	**Pollen: color**					
PQ	**(c)**	whitish					1
		greenish					2
		yellow					3
		purplish					4
		bluish					5

8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

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

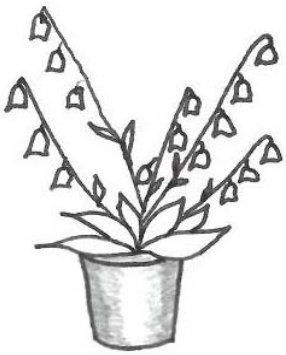
(a) Observation should be made on plants at the time of full flowering.
(b) Observations on the leaf should be made on fully expanded leaves from the middle third of a flowering stem, excluding the inflorescence. Observations are not made on the basal leaves of the plant. The upper side of the leaf should always be observed unless otherwise stated.
(c) Observations on the calyx and corolla should be made on new fully open flowers.
(d) The main color is the color with the largest total surface area, the secondary color (if present) is the color with the second largest total surface area.

8.2 Explanations for individual characteristics

Ad. 1: Plant: growth habit

The plants should be grown in containers to observe the plant growth habit.

1
upright



2
semi-upright

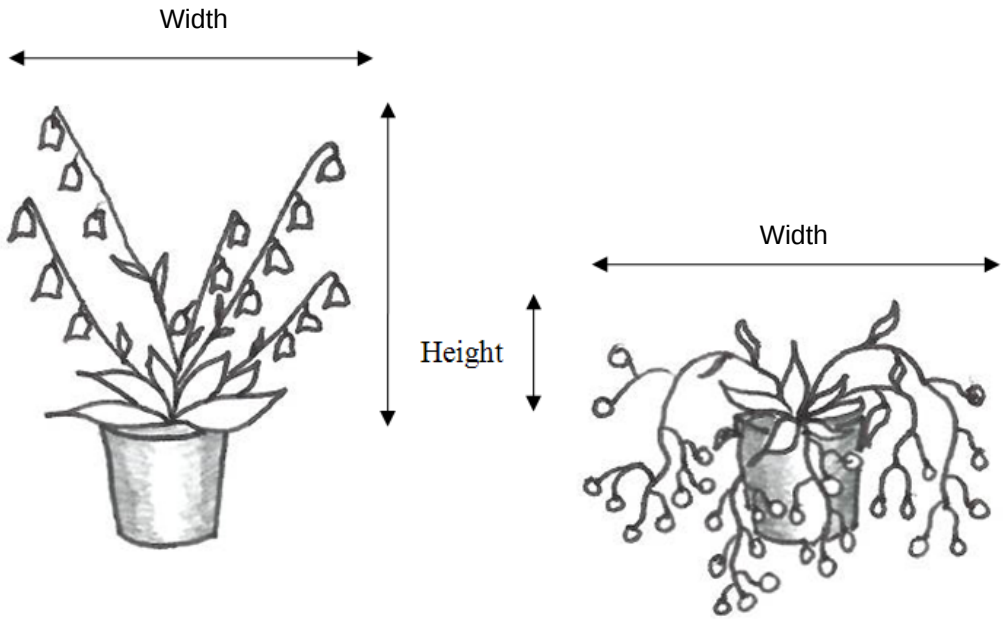
3
spreading

4
semi-trailing

5
trailing

Ad. 2: Plant: height
Ad. 3: Plant: width

The natural height of the plant should be assessed from the surface of the growing medium. The natural width of the plants should be observed.



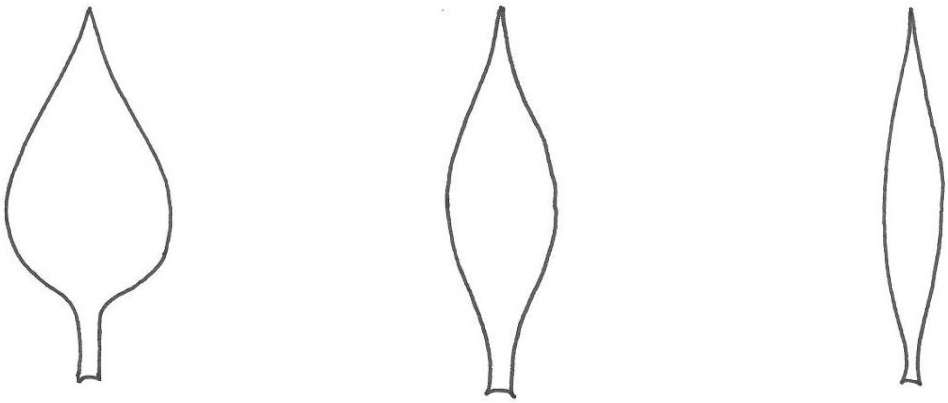
Ad. 4: Plant: density

This is an overall assessment of the density of the whole plant, including flowers and leaves.

Ad. 5: Stem: color

To be observed in the middle third of the flowering stem, excluding the flowering part.

Ad. 9: Leaf blade: length/width ratio



3
low

5
medium

7
high

Ad. 10: Leaf blade: position of broadest part

1
strongly towards base

2
moderately towards base

3
at middle

4
moderately towards apex

Ad. 11: Leaf blade: shape of apex

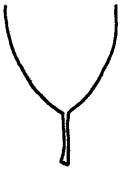
1
acuminate

2
acute

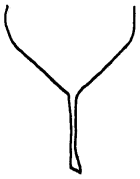
3
obtuse

Ad. 12: Leaf blade: shape of base

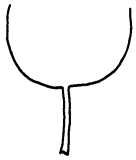
1
linear



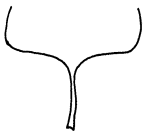
2
acute



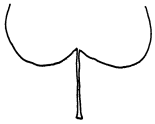
3
obtuse



4
rounded

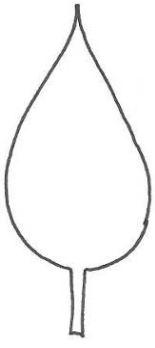


5
truncate

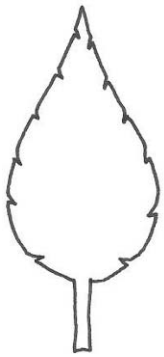


6
cordate

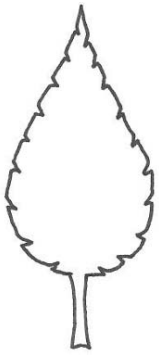
Ad. 18: Leaf blade: indentations of margin



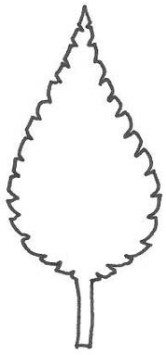
1
absent or very few



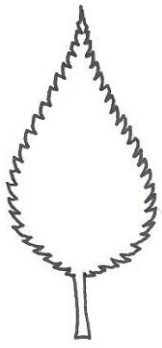
2
few



3
medium

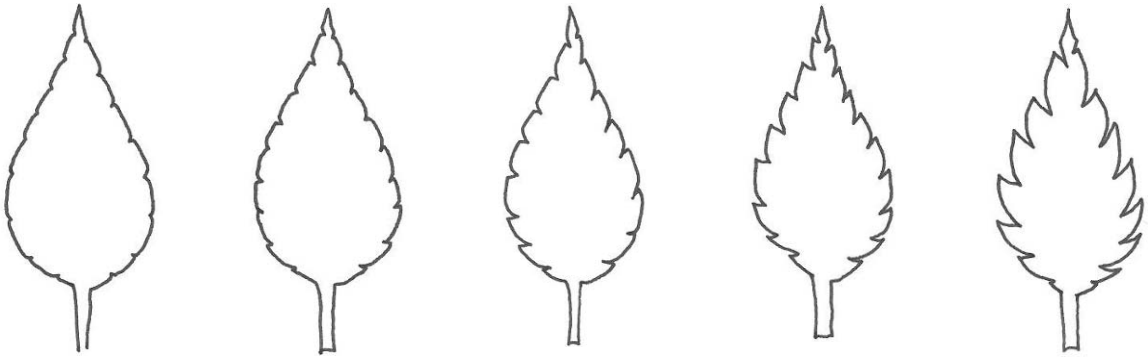


4
many



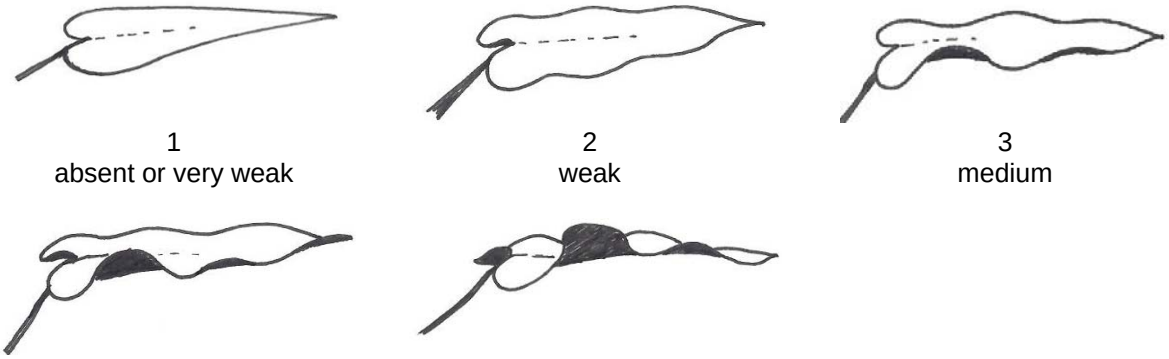
5
very many

Ad. 19: Leaf blade: depth of indentations of margin



1 very shallow | 2 shallow | 3 medium | 4 deep | 5 very deep

Ad. 20: Leaf blade: undulation of margin



1 absent or very weak | 2 weak | 3 medium | 4 strong | 5 very strong

Ad. 21: Flower: attitude

The natural attitude of the corolla should be observed irrespective of the angle of the pedicel.

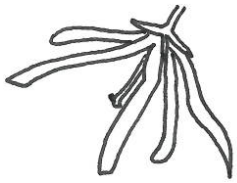
1 upwards | 2 slightly outwards | 3 strongly outwards | 4 slightly downwards | 5 strongly downwards

Ad. 22: Flower: type

1
tubular

2
campanulate

3
rotate

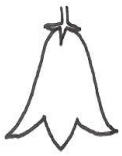


4
stellate (with strap-shaped lobes)

Ad. 23: Flower: profile in longitudinal section

1
converging

2
parallel



3
slightly diverging

4
moderately diverging

5
strongly diverging

6
horizontal

7
reflexing

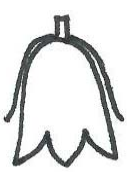
Ad. 24: Calyx: petaloid lobes

1
absent

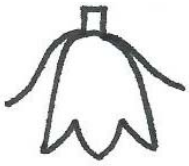
9
present

Ad. 26: Calyx: position of lobes

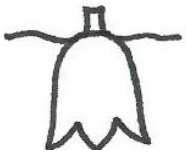
The observation is on the lobe of the calyx and excludes any appendage that might be present between the lobes.



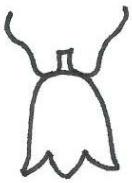
1
adpressed to corolla



3
moderately spreading



5
horizontal



7
moderately reflexed

9
strongly reflexed

Ad. 27: Corolla: number of whorls

This does not include the petaloid calyx where present.

1
very few

2
few

3
medium

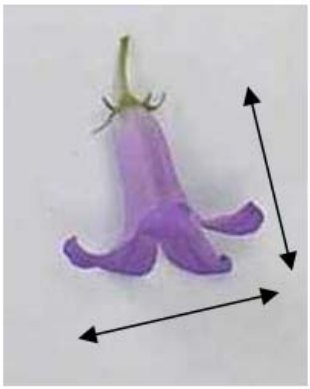
4
many

additional diagram to be inserted

5
very many

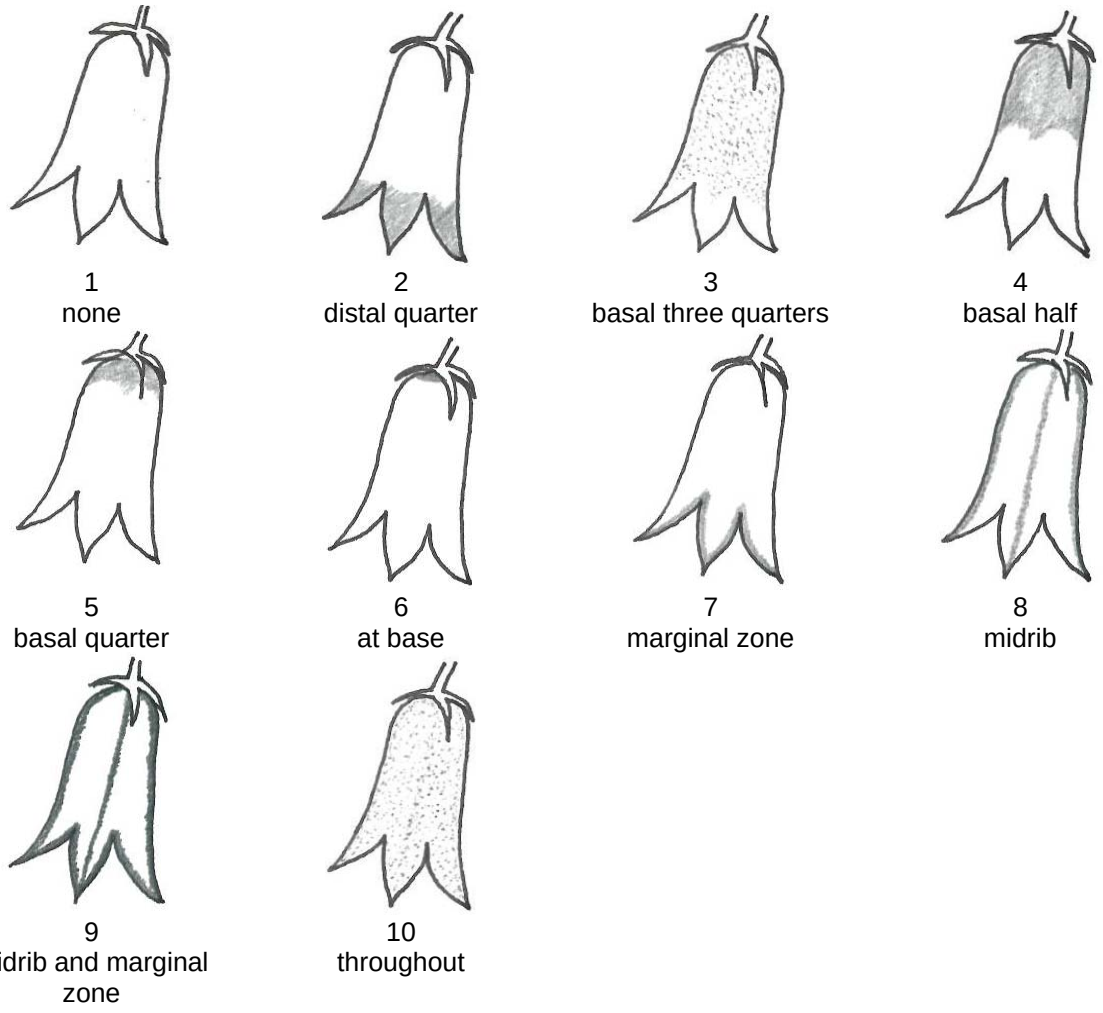
Ad. 28: Corolla: length
Ad. 29: Corolla: diameter

Assess the natural diameter and the natural length of the corolla.



Diameter

Ad. 32: Corolla: distribution of secondary color of outer side



1
none

2
distal quarter

3
basal three quarters

4
basal half

5
basal quarter

6
at base

7
marginal zone

8
midrib

9
midrib and marginal zone

10
throughout

Ad. 33: Corolla: pattern of secondary color of outer side

1
solid or nearly solid

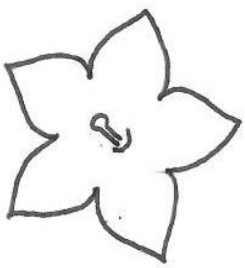
2
flushed

3
striped

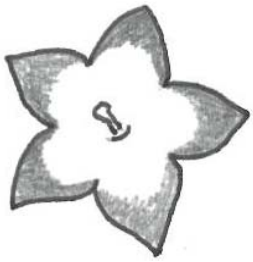
4
small spots

5
medium spots

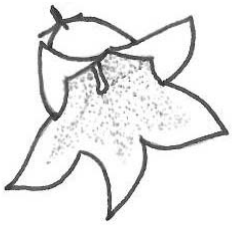
Ad. 36: Corolla: distribution of secondary color of inner side



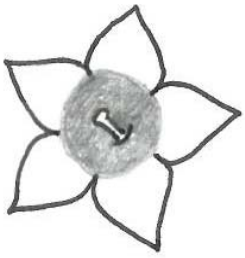
1
none



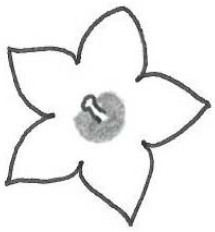
2
distal quarter



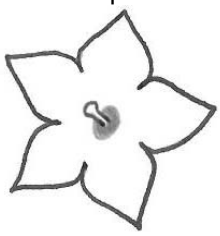
3
basal three quarters



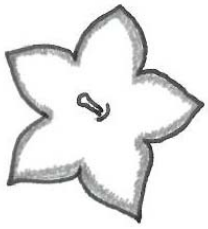
4
basal half



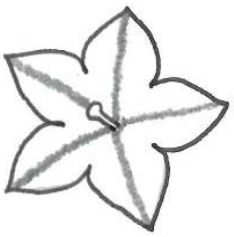
5
basal quarter



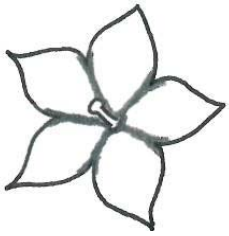
6
at base



7
marginal zone



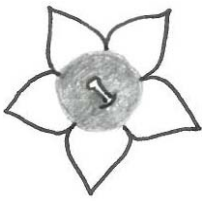
8
midrib



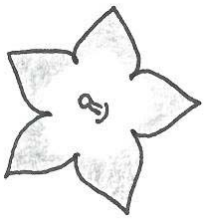
9
longitudinal zone (lobe sinus to base)

10
throughout

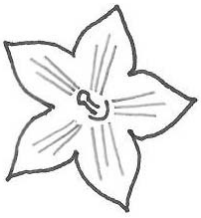
Ad. 37: Corolla: pattern of secondary color of inner side



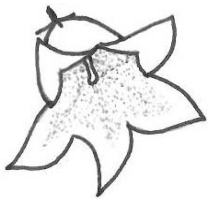
1
solid or nearly solid



2
flushed



3
striped



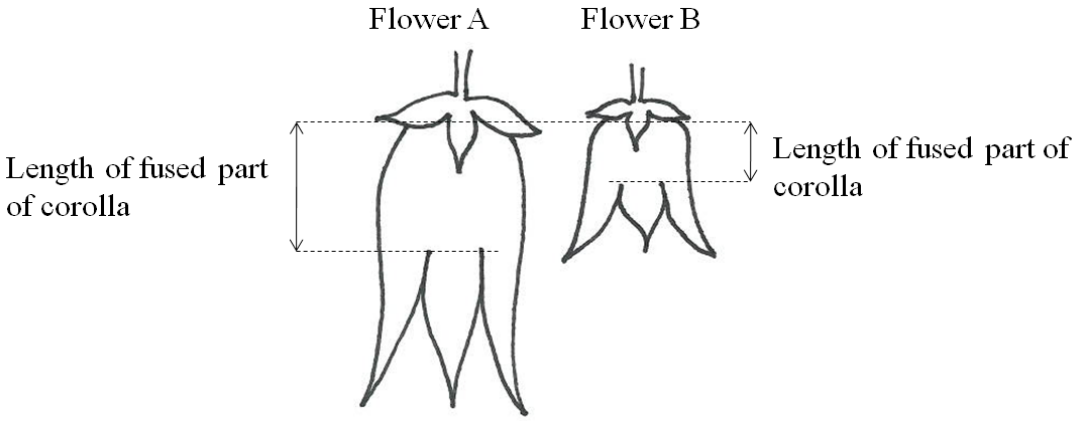
4
small spots

5
medium spots

Ad. 39: Corolla: length of fused part
Ad. 40: Corolla: length of fused part compared to total corolla length

The length of the fused part of the corolla can be expressed in absolute terms in characteristic 39, or as a proportion of the total length of the corolla in characteristic 40. The expression of the two characteristics is independent as shown in the two examples below.

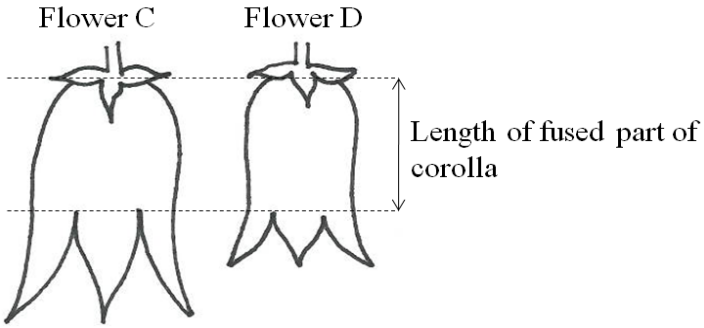
Example 1



Characteristic 39 – the note observed for the absolute length of the fused part of the corolla for flower A would be different from flower B as A is twice the length of the B.

Characteristics 40 – the note observed would be the same for flower A and flower B as the proportion of the corolla made up of the fused part is 'medium' for both.

Example 2

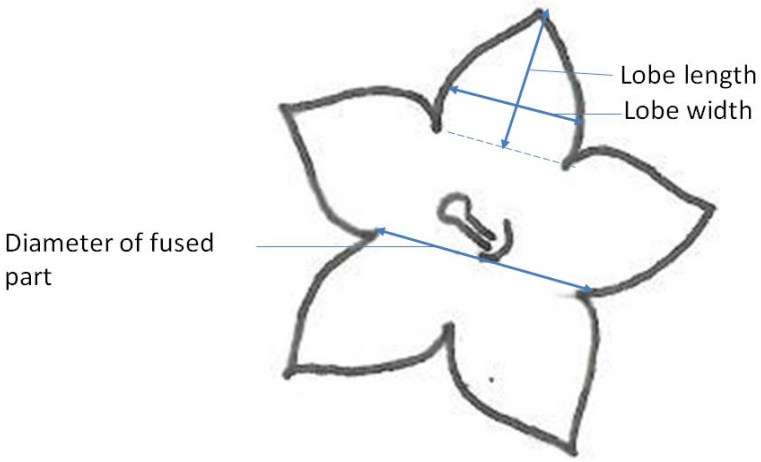


Characteristic 39 – the note observed for the absolute length of flower C would be the same as flower D.
Characteristic 40 – the note observed for flower C would be 5 (medium) and for flower D it would be 7 (long), this is because the proportion of the corolla made up of the fused part is different.

Ad. 40: Corolla: length of fused part compared to total corolla length

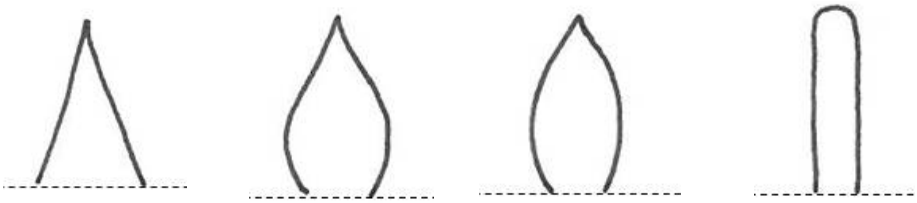
1	3	5	7	9
absent or very short	short	medium	long	very long

Ad. 41: Corolla: diameter of fused part
Ad. 43: Corolla lobe: length
Ad. 44: Corolla lobe: width



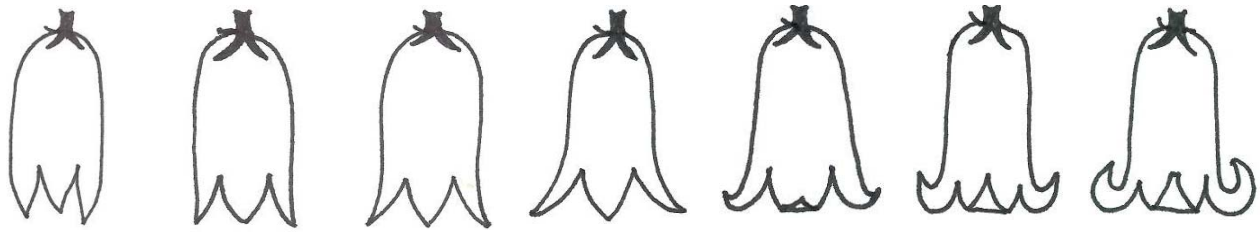
Ad. 42: Corolla lobe: shape

The lobe is the unfused part of the corolla.



1	2	3	4
triangular	ovate	elliptic	oblong

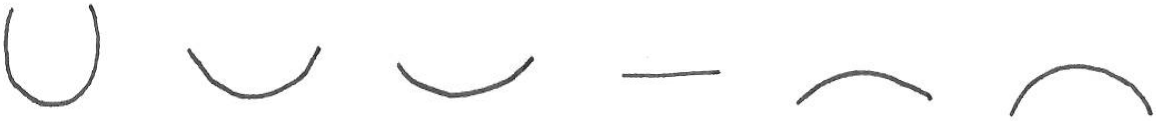
Ad. 45: Corolla lobe: curvature



1	2	3	4	5	6	7
very weakly incurving	straight	very weakly reflexing	weakly reflexing	moderately reflexing	strongly reflexing	very strongly reflexing

Ad. 46: Corolla lobe: profile in cross section

To be observed at widest point of the lobe with the inner part of the lobe facing upwards.



1	2	3	4	5	6
strongly concave	moderately concave	weakly concave	flat	weakly convex	moderately convex

Ad. 47: Corolla lobe: shape of apex

1	2	3	4	5
acuminate	acute	obtuse	rounded	truncate

9. Literature

Brickell, C.,(ed.)., 1996: The Royal Horticultural Society A-Z Encyclopedia of Garden Plants. Dorling Kindersley Ltd.. London, GB

Huxley, A., (ed.), Griffiths, M., (ed.), Levy, M., (ed.), 1999: The Royal Horticultural Society Dictionary of Gardening. McMillan Reference Ltd.. London, GB

Lewis, P., Lynch, M., 1989: Campanulas. Christopher Helm Ltd. Bromley, Kent, GB

Nicholls, G., 2006: Dwarf Campanulas and Associated Genera. Timber Press Inc. Oregon, US

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	*Campanula* L.
1.2	Common name	Campanula
1.3	Species (please complete)	

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 varieties)

(……..……..) 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) cuttings [ ]

(b) *in vitro* propagation [ ]

(c) other (state method) [ ]

4.2.2 Seed [ ]

4.2.3 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: growth habit**		
	upright	La Bello	1[ ]
	semi-upright	Sarastro	2[ ]
	spreading	PKMP05	3[ ]
	semi-trailing	Blue Rivulet	4[ ]
	trailing		5[ ]
5.2 (2)	**Plant: height**		
	extremely short		1[ ]
	extremely short to very short		2[ ]
	very short	Samantha	3[ ]
	very short to short		4[ ]
	short	Caroline	5[ ]
	short to medium		6[ ]
	medium	Sarastro	7[ ]
	medium to tall		8[ ]
	tall	Kent Belle	9[ ]
	tall to very tall		10[ ]
	very tall		11[ ]
	very tall to extremely tall		12[ ]
	extremely tall		13[ ]

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

	Characteristics	Example Varieties	Note
5.3 (14)	**Leaf blade: main color**		
	whitish		1[ ]
	yellow	Kifu	2[ ]
	yellow green	Blue Eyed Blonde	3[ ]
	light green	Caroline	4[ ]
	medium green	Sarastro	5[ ]
	dark green		6[ ]
	grey green		7[ ]
	green tinged with purplish red	Blue Rivulet	8[ ]
	purplish red	Silver Bells	9[ ]
5.4 (21)	**Flower: attitude**		
	upwards	Samantha	1[ ]
	slightly outwards	PKMP05	2[ ]
	strongly outwards	Blue Eyed Blonde	3[ ]
	slightly downwards	Pink Octopus	4[ ]
	strongly downwards	Sarastro	5[ ]
5.5 (22)	**Flower: type**		
	tubular	Sarastro	1[ ]
	campanulate	PKMH01	2[ ]
	rotate	Samantha	3[ ]
	stellate (with strap-shaped lobes)	Pink Octopus	4[ ]
5.6 (27)	**Corolla: number of whorls**		
	very few	PKMH01	1[ ]
	few		2[ ]
	medium		3[ ]
	many	La Bello	4[ ]
	very many		5[ ]
5.7(i) (30)	**Corolla: main color of outer side**		
	RHS Colour Chart (indicate reference number)		

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

	Characteristics	Example Varieties	Note
5.7(ii) (30)	**Corolla: main color of outer side**		
	white	La Bello	1[ ]
	pink	Elizabeth	2[ ]
	red purple		3[ ]
	purple	Sarastro	4[ ]
	blue	Blue Rivulet	5[ ]
5.8(i) (31)	**Corolla: secondary color of outer side**		
	RHS Colour Chart (indicate reference number)		
5.8(ii) (31)	**Corolla: secondary color of outer side**		
	white	Elizabeth	1[ ]
	pink		2[ ]
	red purple		3[ ]
	purple		4[ ]
	blue	La Bello	5[ ]
5.8(i) (34)	**Corolla: main color of inner side**		
	RHS Colour Chart (indicate reference number)		
5.8(ii) (34)	**Corolla: main color of inner side**		
	white	Pink Octopus	1[ ]
	pink	Elizabeth	2[ ]
	red purple		3[ ]
	purple	Sarastro	4[ ]
	blue	Samantha	5[ ]
5.9(i) (35)	**Corolla: secondary color of inner side**		
	RHS Colour Chart (indicate reference number)		

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

	Characteristics	Example Varieties	Note
5.9(ii) (35)	**Corolla: secondary color of inner side**		
	white	Elizabeth	1[ ]
	pink	Pantaloons	2[ ]
	red purple	Pink Octopus	3[ ]
	purple		4[ ]
	blue	La Bello	5[ ]

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	*Flower: attitude*	*upwards*	*strongly outwards*

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

Main use of the variety

(a)	pot plant	[ ]
(b)	garden plant	[ ]
(c)	cut flower	[ ]
(d)	other	[ ]
	(please provide details)	

.....

A representative color image of the variety should accompany the Technical Questionnaire.

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.

[#] 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:

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]