



PROTOCOL FOR TESTS ON DISTINCTNESS, UNIFORMITY AND STABILITY

***Phalaenopsis* Blume**

MOTH ORCHID

UPOV Code: PHALE

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1. SUBJECT OF THE PROTOCOL AND REPORTING

1.1 Scope of the technical protocol

This Technical Protocol applies to all varieties of *Phalaenopsis* Blume.

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/213/2 Rev. Corr. dated 17/11/2020 (<https://www.upov.int/edocs/tgdocs/en/tg213.pdf>) for the conduct of tests for Distinctness, Uniformity and Stability.

1.2 Entry into Force

The present protocol enters into force on **14.04.2021**. Any ongoing 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.

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 vigor, 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

Single growing cycle

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.

Observation of colour by eye

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

Each test should be designed to result in a total of at least 9 plants.

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 Special tests for additional characteristics

In accordance with Article 23 of Implementing Rules N° 874/2009 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, a special test may be undertaken providing that a technically acceptable test procedure can be devised.

Special 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 EO unless special cooperation exists between EOs and the CPVO. The variety collection shall comprise images (e.g. photographs, illustrations or digitalized images) of representative parts of the plants of each variety, produced by the respective EO. The descriptive and pictorial information produced by the EO shall be held and maintained in a form of a database.

3.6.2 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, 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

3.6.3 Maintenance and renewal/update of a living variety collection

The EO shall maintain the variety collection under appropriate growing conditions (e.g. glasshouse, orchard, in vitro), where it shall be ensured that the plants are adequately irrigated, fertilised, pruned and protected from harmful pests and diseases. For the renewal of existing living material the identity of replacement living plant material shall be verified by conducting side-by-side plot comparisons between the material in the collection and the new material or by checking the identity of the new material against the variety description.

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.

Further guidance is provided in documents TGP/9 "Examining Distinctness" and TGP/8 "Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability".

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 8 plants or parts taken from each of 8 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. 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 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 points are provided for elaboration or emphasis in this Technical Protocol:

4.2.2 This Technical Protocol has been developed for the examination of vegetatively propagated varieties. For varieties with other types of propagation the recommendations in the UPOV-General Introduction to DUS and document TGP/13 "Guidance for new types and species", Section 4.5 "Testing Uniformity" should be followed.

Uniformity assessment on all plants in the test

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 9 plants, 1 off-type is allowed.

4.3 **Stability**

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.

5. GROUPING OF VARIETIES AND ORGANISATION 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 organise the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics.

- a) Plant: length (characteristic 1)
- b) Leaf: variegation (characteristic 10)
- c) Leaf: spots on upper side (characteristic 11)
- d) Flower: width in front view (characteristic 22)
- e) Petal: ground colour of upper side (characteristic 58) with the following groups:
 - Gr. 1: white
 - Gr. 2: yellow
 - Gr. 3: green
 - Gr. 4: orange
 - Gr. 5: red
 - Gr. 6: violet
 - Gr. 7: purple red
 - Gr. 8: purple
 - Gr. 9: brown
- f) Petal: over colour (if present) (characteristic 59) with the following groups:
 - Gr. 1: yellow
 - Gr. 2: green
 - Gr. 3: orange
 - Gr. 4: red
 - Gr. 5: violet
 - Gr. 6: purple red
 - Gr. 7: purple
 - Gr. 8: brown
- g) Petal: number of spots (characteristic 61)
- h) Petal: number of stripes (characteristic 64)
- i) Petal: density of netting (characteristic 66)

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

5.5 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the UPOV-General Introduction to DUS and document TGP/9 "Examining Distinctness".

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.

6.2. 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 |

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

6.3 Example Varieties

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

6.4 Legend

For column 'CPVO N°':

| | | |
|-----|---|------------------|
| G | Grouping characteristic | -see Chapter 5 |
| QL | Qualitative characteristic | |
| QN | Quantitative characteristic | |
| PQ | Pseudo-qualitative characteristic | |
| (+) | Explanations for individual characteristics | -see Chapter 8.2 |

For column 'UPOV N°':

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

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

For column 'Stage, method':

| | | |
|----------------|---|--------------------|
| MG, MS, VG, VS | | -see Chapter 4.1.5 |
| (a)-(c) | Explanations covering several Characteristics | -see Chapter 8.1 |

7. TABLE OF CHARACTERISTICS

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note | | |
|-------------------------|-------------------------|---------------|--|-----------------|----------------------|------------------------|---|
| 1. (+) | 1. (*) | MS/VG | Plant: length | | | | |
| | | | QN | (a) | short | Phalboezeg, Artic Air | 3 |
| | | | | | medium | Phalpnizok, Navigator | 5 |
| G | | | long | Phalgupeo | 7 | | |
| 2. | 2. (*) | MS/VG | Plant: number of inflorescences | | | | |
| | | | QN | (a) | only one | Navigator | 1 |
| | | | | | one or two | Splash Gordon | 2 |
| | | | | | only two | Mathilde, Phalgupeo | 3 |
| | | | | | two or three | MI01552 | 4 |
| | | | | | only three | Phalhinxi | 5 |
| | | | | | more than three | Phalioceg | 6 |
| 3. | 3. | MS/VG | Leaf: length | | | | |
| | | | QN | (a), (b) | short | SOGO F1384, Arctic Air | 3 |
| | | | | | medium | Phalgupeo | 5 |
| | | | | | long | Phalhinxi | 7 |
| 4. | 4. | MS/VG | Leaf: width | | | | |
| | | | QN | (a), (b) | narrow | Arctic Air | 3 |
| | | | | | medium | Mrs Brown, Phalgupeo | 5 |
| | | | | | broad | MI00587 | 7 |
| 5. (+) | 5. | VG | Leaf: shape | | | | |
| | | | QN | (a), (b) | slightly elongated | MI00587 | 1 |
| | | | | | moderately elongated | Phalmache, Phalgupeo | 2 |
| | | | | | very elongated | Phalhinxi | 3 |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note |
|-------------------------|--------------------------|-----------------|--|---------------------|------|
| 6. (+) | 6. | MS/VG | Leaf: position of broadest part | | |
| | QN | (a), (b) | towards base | | 1 |
| | | | at middle | Phalhinxi | 2 |
| | | | towards apex | MI00674 | 3 |
| 7. (+) | 7. | VG | Leaf: shape of apex | | |
| | PQ | (a), (b) | acute | Phalhinxi | 1 |
| | | | obtuse | Mrs Brown, MI00587 | 2 |
| | | | emarginate | MI01552 | 3 |
| 8. | 8. | MS/VG | Leaf: symmetry of apex | | |
| | QN | (a), (b) | symmetric or slightly asymmetric | MI01552 | 1 |
| | | | moderately asymmetric | Navigator | 2 |
| | | | strongly asymmetric | Phalgupeo | 3 |
| 9. | 9. | MS/VG | Leaf: attitude | | |
| | QN | (a), (b) | semi-erect | Phalpnizok, MI00587 | 3 |
| | | | horizontal | Navigator | 5 |
| | | | semi-drooping | Splash Gordon | 7 |
| 10. | 10. (*) | VG | Leaf: variegation | | |
| | QL | (a), (b) | absent | Phalgupeo | 1 |
| | G | | present | SOGO F2806 | 9 |
| 11. | 11. (*) | VG | Leaf: spots on upper side | | |
| | QL | (a), (b) | absent | Phalgupeo | 1 |
| | G | | present | SION 3591 | 9 |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note |
|--------------------------|--------------------------|-----------------|---|----------------------|------|
| 12. (+) | 12. | VG | Leaf: main colour of upper side | | |
| | PQ | (a), (b) | yellowish green | Phalapek | 1 |
| | | | light green | Vivaldi | 2 |
| | | | medium green | Phalgupeo | 3 |
| | | | dark green | SION 3591 | 4 |
| 13. | 13. | MS/VG | Leaf: anthocyanin coloration of upper side | | |
| | QN | (a), (b) | absent or very weak | Mrs Brown | 1 |
| | | | weak | Phalcoqeo, Navigator | 3 |
| | | | medium | Phalhanwep | 5 |
| | | | strong | Phalaguc, MI00674 | 7 |
| | | | very strong | | 9 |
| 14. (+) | 14. (*) | VG | Inflorescence: type | | |
| | QL | (a) | single flowered | | 1 |
| | | | raceme | Navigator | 2 |
| | | | panicle | Phalunx | 3 |
| 15. (+) | 15. | MS/VG | Inflorescence: length of flowering part | | |
| | QN | (a) | short | Mrs Brown | 3 |
| | | | medium | Navigator | 5 |
| | | | long | Phalhokco | 7 |
| 16. | 16. | MS/VG | Excluding varieties with inflorescence type: single flowered: Inflorescence: number of flowers | | |
| | QN | (a) | few | Navigator | 3 |
| | | | medium | Alabaster, Phalunx | 5 |
| | | | many | MI01122 | 7 |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note | |
|------------|-------------|---------------|--|----------------|------------------------|---|
| 17. | 17. | MS/VG QN | Peduncle: length (a) | short | Phalguajo | 3 |
| | | | | medium | Phaltulen, Navigator | 5 |
| | | | | long | MI00587 | 7 |
| 18. (+) | 18. | MS/VG QN | Peduncle: thickness (a) | thin | Phaladadel | 1 |
| | | | | medium | Navigator | 2 |
| | | | | thick | MI00587 | 3 |
| 19. | 19. | VG QN | Peduncle: anthocyanin coloration (a) | absent or weak | Phaltulen | 1 |
| | | | | medium | Phalguajo | 3 |
| | | | | strong | Mrs Brown, MI00587 | 5 |
| 20. (+) | 20. | VG QN | Flower: shape in lateral view (c) | concave | Road Trip | 1 |
| | | | | flat | Phalboezeq, Phalgnaaq | 2 |
| | | | | convex | Mrs Brown, Phalhalxyp | 3 |
| 21. (+) | 21. (*) | MS/VG QN | Flower: length in front view (c) | very short | Phaliqzia | 1 |
| | | | | short | Mrs Brown, Phalgnaaq | 3 |
| | | | | medium | Phaladadel, Phalhalxyp | 5 |
| | | | | long | Road Trip | 7 |
| | | | | very long | Cygnus Renaissance | 9 |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note | | | |
|--------------------------|--------------------------|---------------|--------------------------------------|-----------|------------|-----------------------|---------------------------|---|
| 22. (+) | 22. (*) | MS/VG | Flower: width in front view | | | | | |
| | | | | QN | (c) | very narrow | Phaliquzia | 1 |
| | | | | | | narrow | Mrs Brown, Phalgnaaq | 3 |
| | | | | | | medium | Phalhalxyp | 5 |
| | | | | | | broad | Phaladadel, Road Trip | 7 |
| G | | very broad | Cygnus Renaissance | 9 | | | | |
| 23. (+) | 23. | MS/VG | Flower: arrangement of petals | | | | | |
| | | | | QN | (c) | free | Phalhalxyp | 1 |
| | | | | | | touching | MI00335 | 2 |
| overlapping | Halcyon | 3 | | | | | | |
| 24. | 24. | MS/VG | Flower: fragrance | | | | | |
| | | | | QN | (c) | absent or weak | Phalhalxyp | 1 |
| | | | | | | moderate | SION 3591 | 2 |
| strong | Sun Passat | 3 | | | | | | |
| 25. | 25. | MS/VG | Dorsal sepal: length | | | | | |
| | | | | QN | (c) | short | Phalgrufha | 3 |
| | | | | | | medium | Phaladadel, MI01134 | 5 |
| long | MI00779 | 7 | | | | | | |
| 26. | 26. | MS/VG | Dorsal sepal: width | | | | | |
| | | | | QN | (c) | narrow | Phalgrufha | 3 |
| | | | | | | medium | SOGO F-977, MI00208 | 5 |
| broad | Phalgnaaq | 7 | | | | | | |
| 27. | 27. | VG | Dorsal sepal: shape | | | | | |
| | | | | QN | (c) | moderately compressed | Stardust | 3 |
| | | | | | | medium | Taisuco Anna, Suger Jelly | 5 |
| moderately elongated | SION 3591 | 7 | | | | | | |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note |
|------------|------------|---------------|---|-------------|------|
| 28. | 28. | MS/VG QN | Dorsal sepal: position of broadest part towards base at middle towards apex | MI00587 | 1 |
| | | | | Suger Jelly | 2 |
| | | | | SION 3591 | 3 |
| 29. (+) | 29. | MS/VG QN | Dorsal sepal: curvature of longitudinal axis incurving straight recurving | Cuckoo | 1 |
| | | | | Mrs Brown | 2 |
| | | | | Phalhipvah | 3 |
| 30. (+) | 30. | MS/VG QN | Dorsal sepal: shape in cross section concave straight convex | SION 3591 | 1 |
| | | | | SION 3792 | 2 |
| | | | | Phalhipvah | 3 |
| 31. | 31. | VG QL | Dorsal sepal: twisting absent present | Road Trip | 1 |
| | | | | | 9 |
| 32. | 32. | MS/VG QN | Dorsal sepal: undulation of margin absent or weak moderate strong | Phaladadel | 1 |
| | | | | Miss Saigon | 2 |
| | | | | | 3 |
| 33. (+) | 33. (*) | VG PQ | Dorsal sepal: ground colour of upper side RHS Colour Chart (indicate reference number) | | |
| | | | | | |
| 34. (+) | 34. (*) | VG PQ | Dorsal sepal: over colour (if present) RHS Colour Chart (indicate reference number) | | |
| | | | | | |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note |
|---------|------------|---------------|---|-------------------------------|------|
| 35. | 35. (*) | MS/VG | Dorsal sepal: number of spots | | |
| | QN | (c) | none | Road Trip | 1 |
| | | | few | MI00779 | 3 |
| | | | medium | MI00208 | 5 |
| | | | many | Suger Jelly | 7 |
| 36. | 36. | MS/VG | Dorsal sepal: size of spots | | |
| | QN | (c) | small | MI00208 | 3 |
| | | | medium | MI00779 | 5 |
| | | | large | Troubadour | 7 |
| 37. | 37. | VG | Dorsal sepal: colour of spots | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |
| 38. | 38. (*) | MS/VG | Dorsal sepal: number of stripes | | |
| | QN | (c) | none | Road Trip | 1 |
| | | | few | | 3 |
| | | | medium | MI01134 | 5 |
| | | | many | Taida Little Zebra, Phalgitze | 7 |
| 39. | 39. | VG | Dorsal sepal: colour of stripes | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |
| 40. | 40. (*) | MS/VG | Dorsal sepal: density of netting | | |
| | QN | (c) | none | Road Trip | 1 |
| | | | low | Phalhalxyp | 3 |
| | | | medium | MI01134 | 5 |
| | | | high | Happy Days | 7 |
| 41. | 41. | VG | Dorsal sepal: colour of netting | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note |
|------------|---------|---------------|---|-------------------------------|------|
| 42. (+) | 42. | VG | Lateral sepal: ground colour of upper side | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |
| 43. (+) | 43. | VG | Lateral sepal: over colour (if present) | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |
| 44. | 44. | MS/VG | lateral sepal: number of spots | | |
| | QN | (c) | none | Road Trip | 1 |
| | | | few | Phaliqzia | 3 |
| | | | medium | Feeling Groovy, MI00779 | 5 |
| | | | many | MI00208 | 7 |
| 45. | 45. | VG | Lateral sepal: colour of spots | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |
| 46. | 46. | MS/VG | lateral sepal: number of stripes | | |
| | QN | (c) | none | Road Trip | 1 |
| | | | few | Phalbembu | 3 |
| | | | medium | MI01134 | 5 |
| | | | many | Taida Little Zebra, Phalgitze | 7 |
| 47. | 47. | VG | Lateral sepal: colour of stripes | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |
| 48. | 48. | MS/VG | Lateral sepal: density of netting | | |
| | QN | (c) | none | Road Trip | 1 |
| | | | low | Phalhalxyp | 3 |
| | | | medium | MI01134 | 5 |
| | | | high | SIO0021 | 7 |
| 49. | 49. | VG | Lateral sepal: colour of netting | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note |
|------------|---------------------|------------------|--|------------------------|------|
| 50. | 50. (* QN | MS/VG (c) | Petal: length | | |
| | | | short | Suger Jelly | 3 |
| | | | medium | Phaladadel | 5 |
| | | | long | Road Trip | 7 |
| 51. | 51. (* QN | MS/VG (c) | Petal: width | | |
| | | | narrow | Mrs Brown, SOGO F-2451 | 3 |
| | | | medium | Phalhalxyp | 5 |
| | | | broad | Road Trip | 7 |
| 52. | 52. QN | VG (c) | Petal: shape | | |
| | | | moderately compressed | Asian Queen, Road Trip | 3 |
| | | | medium | Suger Jelly | 5 |
| | | | moderately elongated | Phalgitze | 7 |
| 53. | 53. (* QN | MS/VG (b) | Petal: position of broadest part | | |
| | | | towards base | Road Trip | 1 |
| | | | at middle | Phalgitze | 2 |
| | | | towards apex | Aïda | 3 |
| 54. (+) | 54. QN | MS/VG (c) | Petal: curvature of longitudinal axis | | |
| | | | incurving | Road Trip | 1 |
| | | | straight | Mrs Brown, SOGO F2451 | 2 |
| | | | recurving | Phalhalxyp | 3 |
| 55. (+) | 55. QN | MS/VG (c) | Petal: shape in cross section | | |
| | | | concave | Road Trip | 1 |
| | | | straight | SOGO F2451 | 2 |
| | | | convex | Phalhalxyp | 3 |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note |
|------------|------------|---------------|---|---|------|
| 56. | 56. | VG | Petal: twisting | | |
| | QL | (c) | absent | Mrs Brown | 1 |
| | | | present | | 9 |
| 57. | 57. | MS/VG | Petal: undulation of margin | | |
| | QN | (c) | absent or weak | Phaladadel | 1 |
| | | | medium | Spilled Ink | 2 |
| | | | strong | | 3 |
| 58. (+) | 58. (*) | VG | Petal: ground colour of upper side | | |
| | G | PQ | (c) | RHS Colour Chart (indicate reference number) | |
| 59. (+) | 59. (*) | VG | Petal: over colour (if present) | | |
| | G | PQ | (c) | RHS Colour Chart (indicate reference number) | |
| 60. (+) | 60. | MS/VG | Petal: area of over colour | | |
| | QN | (c) | small | Suger Jelly | 3 |
| | | | medium | Champion Aladdin | 5 |
| | | | large | MI01552 | 7 |
| 61. | 61. (*) | MS/VG | Petal: number of spots | | |
| | QN | (c) | none | Road Trip | 1 |
| | | | few | | 3 |
| | | | medium | MI00208 | 5 |
| | G | | many | Suger Jelly | 7 |
| 62. | 62. | MS/VG | Petal: size of spots | | |
| | QN | (c) | small | MI00208 | 3 |
| | | | medium | MI01508 | 5 |
| | | | large | Troubadour | 7 |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note |
|------------|------------|---------------|--|---------------------|------|
| 63. | 63. | VG | Petal: colour of spots | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |
| 64. | 64. (*) | MS/VG | Petal: number of stripes | | |
| | QN | (c) | none | Road Trip | 1 |
| | | | few | | 3 |
| | | | medium | Phalgitze | 5 |
| | G | | many | Firelight | 7 |
| 65. | 65. | VG | Petal: colour of stripes | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |
| 66. | 66. (*) | MS/VG | Petal: density of netting | | |
| | QN | (c) | none | Road Trip | 1 |
| | | | low | Phalypbe | 3 |
| | | | medium | MI00335 | 5 |
| | G | | high | Phalhalxyp | 7 |
| 67. | 67. | VG | Petal: colour of netting | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |
| 68. (+) | 68. (*) | VG | Lip: fusion of lateral lobes with apical lobe | | |
| | QN | (c) | none | Phalorek | 1 |
| | | | slightly fused | | 2 |
| | | | moderately fused | FL106P02 | 3 |
| | | | strongly fused | | 4 |
| | | | completely fused | Yu Pin Fire Works | 5 |
| 69. | 69. | MS/VG | Lip: length of apical lobe | | |
| | QN | (c) | short | Mrs Brown, Phalypbe | 3 |
| | | | medium | SION 3647 | 5 |
| | | | long | P361 | 7 |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note | |
|------------|------------|---------------|---|-------------------------------|-------------------|---|
| 70. | 70. | MS/VG QN | Lip: width of apical lobe | | | |
| | | | (c) | narrow | Phalypbe | 3 |
| | | | | medium | SION 3647 | 5 |
| | | | broad | P361 | 7 | |
| 71. (+) | 71. | VG PQ | Lip: shape of apical lobe | | | |
| | | | (c) | triangular | P361 | 1 |
| | | | | ovate | Phalhyrbam | 2 |
| | | | | trullate | SION 3647 | 3 |
| | | | | elliptic | | 4 |
| | | | | rhombic | Phalypbe | 5 |
| | | | | circular | SION 3591 | 6 |
| | | | | obtrullate | Saffron Star | 7 |
| | | obtriangular | Halcyon | 8 | | |
| 72. | 72. (*) | VG QL | Lip: whiskers | | | |
| | | | (c) | absent | SION 3647 | 1 |
| | | | present | Saffron Star | 9 | |
| 73. | 73. | MS/VG QN | Lip: length of whiskers | | | |
| | | | (c) | short | MI00959 | 3 |
| | | | | medium | Cuckoo, SION 3647 | 5 |
| | | | long | Lih Jianq Firebird, Phalgupeo | 7 | |
| 74. (+) | 74. | MS/VG QN | Lip: bump and ridge on apical lobe | | | |
| | | | (c) | absent or small | P361 | 1 |
| | | | | medium | Phalypbe | 2 |
| | | | large | Mrs Brown, Saffron Star | 3 | |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note |
|--------------------------|--------------------------|---------------|--|-------------------------|------|
| 75. (+) | 75. | VG | Lip: shape of lateral lobe | | |
| | PQ | (c) | type I | Saffron Star | 1 |
| | | | type II | Amy Lee | 2 |
| | | | type III | Golden Jaguar, Phalypbe | 3 |
| | | | type IV | MI00959 | 4 |
| | | | type V | P361 | 5 |
| 76. (+) | 76. | MS/VG | Lip: curvature of lateral lobe | | |
| | QN | (c) | weak | Saffron Star | 1 |
| | | | medium | SION 3647 | 2 |
| | | | strong | Road Trip | 3 |
| 77. | 77. | MS/VG | Lip: size of lateral lobe relative to apical lobe | | |
| | QN | (c) | much smaller | | 1 |
| | | | smaller | Phaladadel, SION 3591 | 3 |
| | | | equal | Road Trip | 5 |
| | | | large | SION 3647 | 7 |
| | | | much larger | | 9 |
| 78. (+) | 78. (*) | VG | Apical lobe: ground colour | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |
| 79. (+) | 79. | VG | Apical lobe: over colour (if present) | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |
| 80. | 80. (*) | MS/VG | Apical lobe: number of spots | | |
| | QN | (c) | none | SIO0037 | 1 |
| | | | few | MI01508, P335 | 2 |
| | | | medium | Spilled Ink | 3 |
| | | | many | SION 3591 | 4 |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note |
|------------|------------|---------------|---|------------|------|
| 81. | 81. | MS/VG | Apical lobe: size of spots | | |
| | QN | (c) | small | P335 | 3 |
| | | | medium | MI01508 | 5 |
| | | | large | | 7 |
| 82. | 82. | VG | Apical lobe: colour of spots | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |
| 83. | 83. (*) | MS/VG | Apical lobe: number of stripes | | |
| | QN | (c) | none | SIO0037 | 1 |
| | | | few | Phalgupeo | 2 |
| | | | medium | MI00634 | 3 |
| | | | many | Phalgrufha | 4 |
| 84. | 84. | VG | Apical lobe: colour of stripes | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |
| 85. | 85. (*) | MS/VG | Apical lobe: density of netting | | |
| | QN | (c) | none | | 1 |
| | | | low | P378 | 2 |
| | | | medium | MI00709 | 3 |
| | | | high | | 4 |
| 86. | 86. | VG | Apical lobe: colour of netting | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |
| 87. (+) | 87. (*) | VG | Lateral lobe: ground colour | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |
| 88. (+) | 88. | VG | Lateral lobe: over colour (if present) | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note |
|------------|---------------------|------------------|---|--------------|------|
| 89. | 89. (* QN | MS/VG (c) | Lateral lobe: number of spots | | |
| | | | none | Baby Seal | 1 |
| | | | few | P335 | 2 |
| | | | medium | P378 | 3 |
| | | | many | Phalborbol | 4 |
| 90. | 90. PQ | VG (c) | Lateral lobe: colour of spots | | |
| | | | RHS Colour Chart (indicate reference number) | | |
| 91. | 91. (* QN | MS/VG (c) | Lateral lobe: number of stripes | | |
| | | | none | Good Times | 1 |
| | | | few | Phalgrufha | 2 |
| | | | medium | Phalgupeo | 3 |
| | | | many | | 4 |
| 92. | 92. PQ | VG (c) | Lateral lobe: colour of stripes | | |
| | | | RHS Colour Chart (indicate reference number) | | |
| 93. | 93. (* QN | MS/VG (c) | Lateral lobe: density of netting | | |
| | | | none | | 1 |
| | | | low | Phalgemdum | 2 |
| | | | medium | Phalgrufha | 3 |
| | | | high | MI00634 | 4 |
| 94. | 94. PQ | VG (c) | Lateral lobe: colour of netting | | |
| | | | RHS Colour Chart (indicate reference number) | | |
| 95. (+) | 95. QN | MS/VG (c) | Lip: Callus | | |
| | | | flat or slightly raised | Saffron Star | 1 |
| | | | moderately raised | P378 | 2 |
| | | | strongly raised | Mrs Brown | 3 |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note |
|---------|---------|---------------|---|-----------|------------|
| 96. | 96. | MS/VG | Callus: colour | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |
| 97. | 97. | VG | Callus: pubescence | | |
| | QL | (c) | absent present | Mrs Brown | 1 9 |
| 98. | 98. | VG | Column: colour | | |
| | PQ | (c) | RHS Colour Chart (indicate reference number) | | |

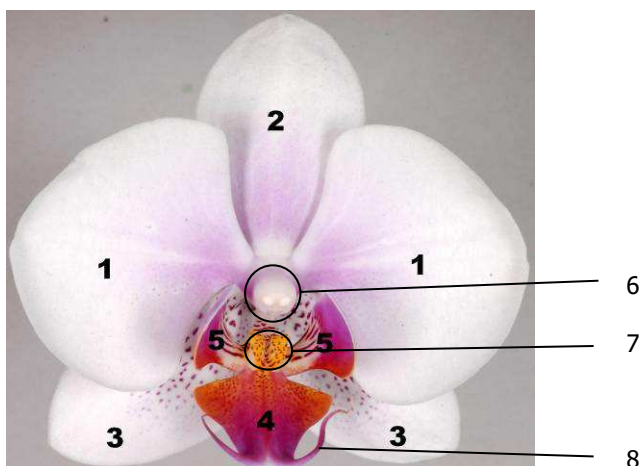
8. EXPLANATIONS ON THE TABLE OF CHARACTERISTICS

8.1 Explanations covering several characteristics

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

- a) Observations on the plant and the stem should be made when 50 % of flowers have opened on the first inflorescence.
- b) Observations on the leaves should be made on the largest fully expanded leaf.
- c) Observations on the flowers should be made on fully expanded flowers when 50 % of the flowers have opened.

- 1: petal
- 2: dorsal sepal
- 3: lateral sepal
- 4: apical lobe
- 5: lateral lobe
- 6: column
- 7: callus
- 8: whiskers



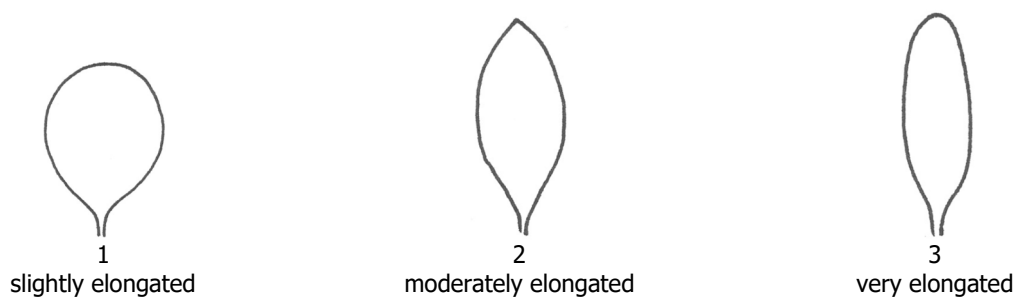
8.2 Explanations for individual characteristics

Ad. 1: Plant: length

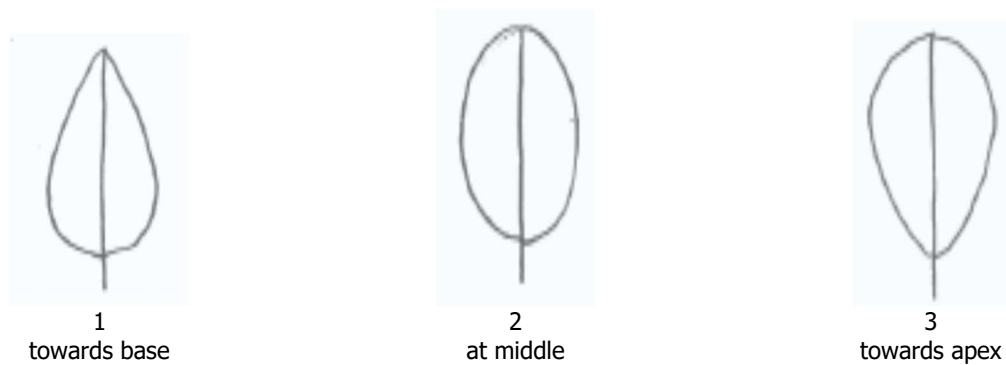
Plant length should be observed from soil level to the end of the plant including the flowers.



Ad. 5: Leaf: shape



Ad. 6: Leaf: position of broadest part



Ad. 7: Leaf: shape of apex



1
acute



2
obtuse



3
emarginate

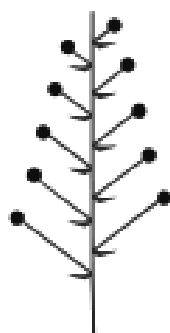
Ad. 12: Leaf: main colour of upper side

The main colour is the colour with the largest surface area. In cases where the areas of the main and secondary colour are too similar to reliably decide which colour has the largest area, the darker colour is considered to be the main colour.

Ad. 14: Inflorescence: type



1
single flowered



2
raceme



3
panicle

Ad. 15: Inflorescence: length of flowering part



Inflorescence: length of
flowering part

Ad. 18: Peduncle: thickness

The thickness of the peduncle must be observed at the centre part of the lower third of the peduncle.

Ad. 20: Flower: shape in lateral view



1
concave



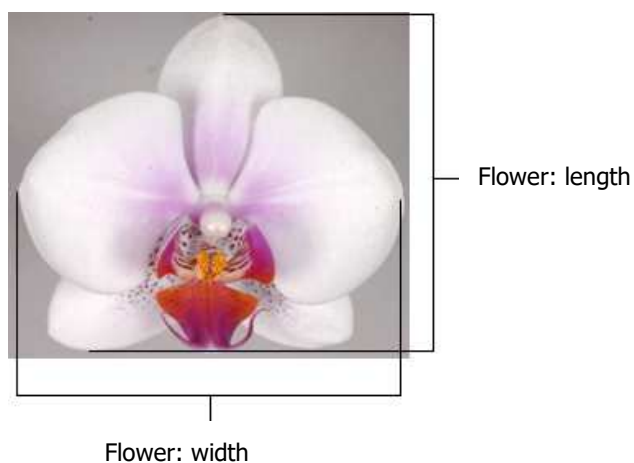
2
flat



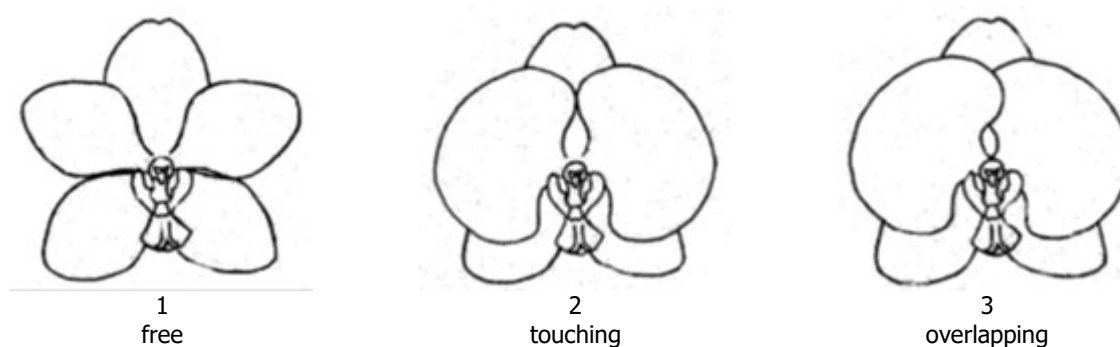
3
convex

Ad. 21: Flower: length in front view

Ad. 22: Flower: width in front view

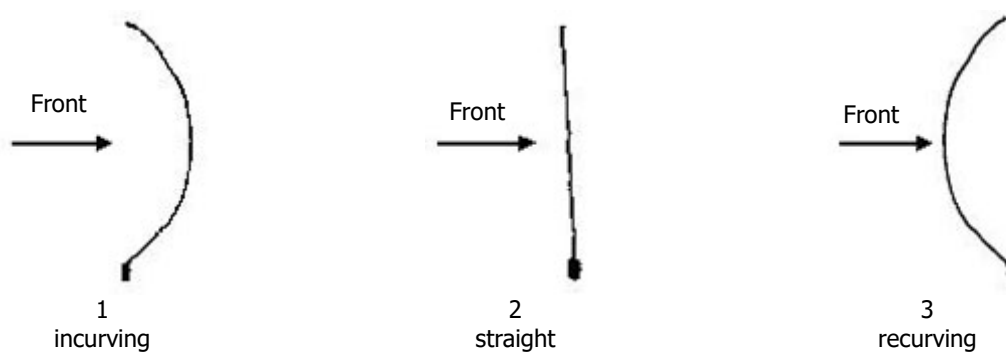


Ad. 23: Flower: arrangement of petals



Ad. 29: Dorsal sepal: curvature of longitudinal axis

Ad. 54: Petal: curvature of longitudinal axis



Ad. 30: Dorsal sepal: shape in cross section

Ad. 55: Petal: shape in cross section



- Ad. 33: Dorsal sepal: ground colour of upper side
- Ad. 42: Lateral sepal: ground colour of upper side
- Ad. 58: Petal: ground colour of upper side
- Ad. 78: Apical lobe: ground colour
- Ad. 87: Lateral lobe: ground colour

When a colour on the upper side is the same as the colour on the lower side this will be the ground colour. The other colours on the upper side belong to the pattern.

- Ad. 34: Dorsal sepal: over colour (if present)
- Ad. 43: Lateral sepal: over colour (if present)
- Ad. 59: Petal: over colour (if present)
- Ad. 79: Apical lobe: over colour (if present)
- Ad. 88: Lateral lobe: over colour (if present)

In the case of a plant part which has a ground colour upon which a second colour such as a flush develops over time, the flush is considered the over colour. The over colour is not always the colour occupying the smallest surface area of the plant part concerned.

Ad. 60: Petal: area of over colour



3
small



5
medium



7
large

Ad. 68: Lip: fusion of lateral lobes with apical lobes

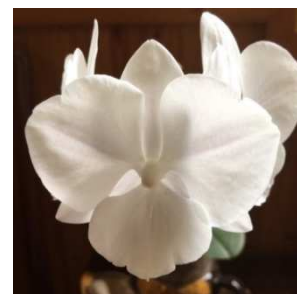
- 1 - none
- 2 - slightly fused = fused up to quarter to length
- 3 – moderately fused = fused to half the length
- 4 – strongly fused = fused to three quarters of length and
- 5 – completely fused



1
none










3
moderately fused

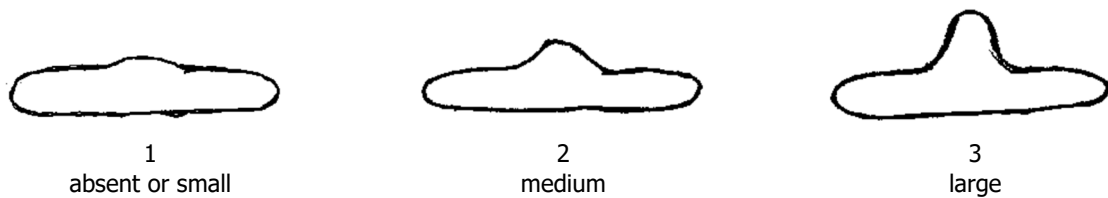


5
completely fused

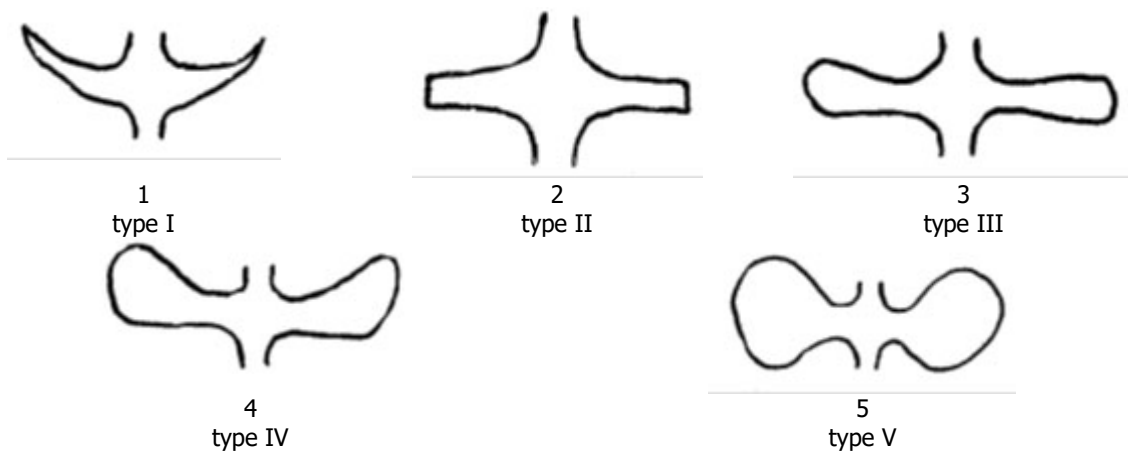
Ad. 71: Lip: shape of apical lobe

| | | ←————— broadest part —————→ | | | | | |
|---|--|---|---|---|---|--|---|
| | | (below middle) | at middle | at middle | (above middle) | (above middle) | |
| narrow (high) → width (ratio length/width) ← | | | | | | | |
| | |  |  |  |  |  |  |
| | | | |  | | | |
| broad (low) | | | | | | | |

Ad. 74: Lip: bump and ridge on apical lobe



Ad. 75: Lip: shape of lateral lobe



Ad. 76: Lip: curvature of lateral lobe



1
weak

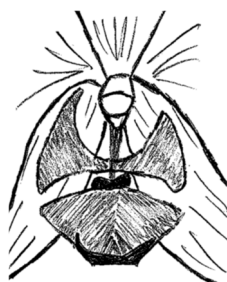


2
medium

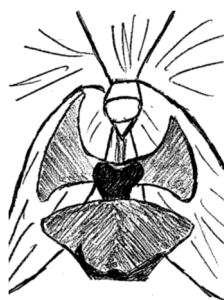


3
strong

Ad. 95: Lip: callus



1
flat or slightly raised



2
moderately raised



3
strongly raised

9. LITERATURE

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10. TECHNICAL QUESTIONNAIRE

The Technical Questionnaire is available on the [CPVO website](#) under the following reference:
CPVO-TQ/213/2-Rev - *Phalaenopsis* Blume – moth orchid