

**Draft-Guidelines  
for the Conduct of Test for  
Distinctiveness, Uniformity and Stability**

**on**

**Orchid**  
*(Cattleya Lindl.)*

**Protection of Plant Varieties and Farmers' Rights Authority  
(PPV & FRA)  
Government of India**

## CONTENTS

	<b>Page</b>
I. Subject	3
II. Plant Material Required	3
III. Conduct of Test	3
IV. Methods and Observations	4
V. Grouping of Varieties	5
VI. Characteristics and Symbols	5
VII. Table of Characteristics	6
VIII. Explanation on the Table of Characteristics	17
IX. Literature	20
X. Working Group Details	20
XI. DUS Testing Centres	21

## **Orchid (*Cattleya* Lindl.)**

### **I. Subject**

These test guidelines apply to all vegetatively propagated varieties of *Cattleya* Lindl. and alliance of the family Orchidaceae.

### **II. Plant Material Required**

1. The Protection of Plant Varieties and Farmers' Rights Authority (PPV & FRA) shall decide when, where and in what quantity and quality the plant material are required for testing of a variety denomination for registration under the Protection of Plant Varieties and Farmers' Rights (PPV & FR) Act, 2001. Applicants submitting such plant material from a country other than India shall make sure that all customs and quarantine requirements stipulated under relevant national legislations and regulations are complied with.
2. For all varieties, two to three years old 20 plants (10 for each Centre) with at least two shoots shall be required for DUS testing.
3. The plant material supplied should be visibly healthy, not lacking in vigour nor affected by any pests or diseases or mechanical damage.
4. Plant material shall not have undergone any chemical or bio-physical treatment unless the competent authority allow or request such treatment. If it has been treated, details of the treatment must be given.

### **III. Conduct of Test**

1. The minimum duration of test should normally be two similar flowering seasons.
2. Test shall normally be conducted at two places. If any essential characteristic of the variety is not expressed for visual observations at these places, the variety shall be considered for further examination at another appropriate test site or under special test protocol on request of the applicant.

3. The test should be carried out under greenhouse conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.
4. The design of the test should be such that the plants or parts of the plants may be removed for measurement and counting without prejudice to the observations which must be made up to the end of the flowering period. Each test should be designed to a result in total of at least 10 plants.
5. Unless otherwise indicated, all observations determined by measuring or counting should be made on 10 plants or parts taken from each of 10 plants.
6. Additional tests for special purposes may be established.
7. Normally, growth regulators shall not be used.

#### **IV. Methods and Observations**

1. The characteristics described in the Table of Characteristics (Section VII) shall be used for the testing of varieties for their DUS.
2. For the assessment of Distinctiveness and Stability, all observations shall be made on 10 plants or parts taken from each of 10 plants.
3. For the assessment of Uniformity, a population standard of 1% and an acceptance probability of at least 95% shall be applied. In the case of a sample size of 10 plants, the maximum number of off-types allowed would be 1.
4. All observations on the shoot shall be made on the flowering shoot.
5. All observations on the leaf shall be made on the longest leaf of a flowering shoot.
6. All observations on the inflorescence and the flower shall be made at the time when 50% of the flowers on the inflorescence have opened and on the most recently fully opened flower on the inflorescence before fading of colour.
7. All observations on the length and width of the flower and parts of the flower shall be made in the spread out position.
8. All observations on the colour of sepal, petal, lip and column shall be made on the inner side.
9. For the assessment of colour characteristics, the Royal Horticultural Society (RHS) colour chart shall be used.

## V. Grouping of Varieties

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 is aided by the use of grouping characteristics.
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.
3. The following have been agreed as useful grouping characteristics:
  - a) Plant: height (Characteristic 1)
  - b) Leaf: number/pseudobulb (Characteristic 6)
  - c) Flower size: width in front view (Characteristic 17)
  - d) Petal: predominant colour (Characteristic 36)
  - e) Lip: predominant colour (Characteristic 41)
  - f) Lip: colour pattern (Characteristic 43)

## VI. Characteristics and Symbols

1. To assess Distinctness, Uniformity and Stability, the characteristics and their states as given in the Table of Characteristics shall be used.
2. Notes 1-9 (numbers) shall be used to describe the state of each character for the purpose of electronic data processing.
3. Legend
  - (\*) Characteristics that shall be observed during every growing season for varieties and hybrids and shall always be included in the description of the varieties and hybrids, except when the state of expression of any of these characters is rendered impossible by a preceding phenological characteristic or by the environment conditions of the testing region. Under such exceptional situation, adequate explanation shall be provided.
  - (+) See explanations on the Table of Characteristics

4. Characteristics denoted with symbols QL, QN and PQ in the first column of the Table of Characteristics shall be indicated as :

**QL:** Qualitative characteristic

**QN:** Quantitative characteristic

**PQ:** Pseudo-qualitative characteristic

5. (a)-(e) see Section VIII for explanation

6. Type of assessment of characteristics indicated in column six of the Table of Characteristics are as follows:

**MG:** Measurement by a single observation 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 observations of individual plants or parts of plant

## VII. Table of Characteristics

Sl. No.	Characteristic	State	Note	Example Varieties /hybrids	Type of Assessment
1. (* ) QN	Plant height (From base to the tip of the flowering shoot)	Small (< 15 cm)	3	Lc 'Manniner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	MS
		Medium (15-30 cm)	5	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Blc 'Guanmiao City'	
		Large (> 30 cm)	7	--	
2. (* ) (+ ) PQ	Nature of pseudobulb (at flowering)	Cylindric	1	Blc 'Guanmiao City', C. 'Queen Sirikhit'	VG
		Clavate	3	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen'	
		Globular / Ovoid	5	Lc 'Ahmad Sheikhi'	

3. QN	Pseudobulb length (at flowering)	Short (<10 cm)	3	Blc 'Guanmiao City', Lc 'Manriner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	MS
		Medium (10-20cm)	5	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen',	
		Long (>20 cm)	7	--	
4. QN	Pseudobulb breadth at broadest part (at flowering)	Narrow (<1.0 cm)	3	Lc 'Purple Cascade Fragrant B', Blc 'Guanmiao City',	MS
		Medium (1.0-2.0 cm)	5	Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Lc 'Manriner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	
		Broad (>2.0 cm)	7	--	
5. QN	Number of shoots / plant	Few (<5)	3	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess',	VG
		Many (5 or more)	7	C. 'Queen Sirikhit', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Blc 'Guanmiao City', Lc 'Manriner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	
6. (* QN (a)	Number of leaves/ pseudobulb	One (Unifoliate)	1	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Blc 'Guanmiao City', Lc 'Manriner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	VG
		Two (Bifoliate)	9	C. 'Queen Sirikhit',	
7. QN (a)	Leaf length (largest leaf)	Short (<10 cm)	3	--	MS
		Medium (10-15 cm)	5	C. 'Queen Sirikhit', Blc 'Hsinging Catherine', Blc 'Guanmiao City', Lc 'Manriner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	
		Long (>15 cm)	7	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', Blc 'Chinese Beauty Orchid Queen',	
8.	Leaf width	Narrow	3	--	MS

QN (a)	(largest leaf)	(<2.5 cm)			
		Medium (2.5-5.0 cm)	5	C. 'Queen Sirikhit', Blc 'Hsinging Catherine', Blc 'Guanmiao City', Lc 'Manniner Far Horizon x L. anceps coerulea	
		Broad (>5.0 cm)	7	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', Blc 'Chinese Beauty Orchid Queen', Lc 'Ahmad Sheikhi'	
9. (+) PQ (a)	Leaf shape (largest leaf)	Narrow oblong	1	Lc 'Manniner Far Horizon x L. anceps coerulea	VG
		Ligulate	3	--	
		Elliptic	5	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Blc 'Guanmiao City', Lc 'Ahmad Sheikhi'	
		Ovate	7	C. 'Queen Sirikhit'	
10. PQ (a)	Leaf colour pattern	Uniformly green on both sides	1	C. 'Queen Sirikhit', Lc 'Purple Cascade Fragrant B', Blc 'Hsinging Catherine'	VG
		Green upside/ purple beneath	3	Lc 'Ahmad Sheikhi'	
		Spotted	5	Blc 'Chinese Beauty Orchid Queen',	
		Streaked	7	--	
11. QN (b)	Inflorescence : number / pseudobulb at a time	One	1	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Blc 'Guanmiao City', Lc 'Manniner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	VG
		Two or more	5	--	
12. QN (b)	Inflorescence length (base of peduncle to the tip of the flowers)	Short (<15 cm)	3	Lc 'Manniner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	MS
		Medium (15- 30 cm)	5	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Blc 'Guanmiao City'	
		Long (>30 cm)	7	--	
13.	Peduncle	Short (<3	3	--	MG



QN (b)	sheath length	cm)			
		Medium (3-5 cm)	5	C. 'Queen Sirikhit', Blc 'Guanmiao City', Lc 'Ahmad Sheikhi'	
		Long (>5 cm)	7	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Lc 'Manriner Far Horizon' x L. anceps coerulea	
14. QN (b)	Peduncle length (base of inflorescence to the 1 <sup>st</sup> Flower)	Short (<5 cm)	3	Lc 'Manriner Far Horizon' x L. anceps coerulea, Lc 'Ahmad Sheikhi'	MS
		Medium (5-10 cm)	5	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen'	
		Long (>10 cm)	7	Blc 'Guanmiao City',	
15. QN (b)	Flower number per peduncle	Few (up to three)	3	Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Lc 'Manriner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	MG
		Many (more than three)	5	C. 'Queen Sirikhit', Blc 'Guanmiao City', Lc 'Purple Cascade Fragrant B'	
16. QN (c)	Flower length (Tip of dorsal sepal to tip of lip)	Short (<8 cm)	3	C. 'Queen Sirikhit'	MS
		Medium (8 -16 cm)	5	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Blc 'Guanmiao City', Lc 'Manriner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	
		Long (>16 cm)	7	--	
17. (* QN (c)	Flower width in front view (distance between tips of two lateral petals)	Narrow (<8 cm)	3	C. 'Queen Sirikhit'	MS
		Medium (8-16 cm)	5	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Blc 'Guanmiao City', Lc 'Manriner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	
		Broad (>16 cm)	7	--	
18.	Flower	Short	3	--	VG

QN (b)	longevity on the plant	(<15 days)			
		Medium (15-30 days)	5	Blc 'Chinese Beauty Orchid Queen', Blc 'Guanmiao City', Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess'	
		Long (> 30 days)	7	C. 'Queen Sirikhit', Blc 'Hsinging Catherine', Lc 'Manniner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	
19. QN (c)	Dorsal sepal length	Short (<5 cm)	3	C. 'Queen Sirikhit'	MS
		Medium (5-10 cm)	5	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Blc 'Guanmiao City', Lc 'Manniner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	
		Long (>10 cm)	7	--	
20. QN (c)	Dorsal sepal width (at middle)	Narrow (<2 cm)	3	C. 'Queen Sirikhit', Blc 'Guanmiao City', Lc 'Manniner Far Horizon x L. anceps coerulea	MS
		Medium (2-3 cm)	5	Lc 'Ahmad Sheikhi'	
		Broad (>3 cm)	7	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen'	
21. (+) PQ	Dorsal sepal shape	Oblong	1	Lc 'Purple Cascade Fragrant B', Blc 'Chinese Beauty Orchid Queen', Lc 'Ahmad Sheikhi'	VG
		Lanceolate	3	Blc 'Guanmiao City'	
		Elliptic	5	Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Lc 'Manniner Far Horizon x L. anceps coerulea	
		Ovate	7	Blc 'Hsinging Catherine'	
22. (+) PQ	Dorsal sepal apex	Acute	1	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Blc 'Chinese Beauty Orchid Queen', Blc 'Guanmiao City', Lc 'Manniner Far Horizon x L. anceps coerulea	VG
		Notched	3	Blc 'Hsinging Catherine'	
		Obtuse	5	Lc 'Ahmad Sheikhi'	
23. (+)	Dorsal sepal curvature	Incurved	1	Lc 'Purple Cascade Fragrant B', C. 'Queen Sirikhit', Blc 'Chinese Beauty	VG

PQ				Orchid Queen', Blc 'Guanmiao City',	
		Straight	3	Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine', Lc 'Manniner Far Horizon x L. anceps coerulea	
		Reflexed	5	Lc 'Ahmad Sheikhi'	
24. QN (c)	Lateral sepal length	Short (<5 cm)	3	Lc 'Purple Cascade Fragrant B', C. 'Queen Sirikhit', Blc 'Guanmiao City', Lc 'Manniner Far Horizon x L. anceps coerulea	MS
		Medium (5-10 cm)	5	Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Lc 'Ahmad Sheikhi'	
		Long (>10 cm)	7	--	
25. QN (c)	Lateral sepal width	Narrow (<2 cm)	3	Lc 'Purple Cascade Fragrant B', C. 'Queen Sirikhit', Blc 'Guanmiao City', Lc 'Manniner Far Horizon x L. anceps coerulea	MS
		Medium (2-3 cm)	5	Lc 'Ahmad Sheikhi'	
		Broad (>3 cm)	7	Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen'	
26. (+) PQ	Lateral sepal shape	Oblong	1	Lc 'Purple Cascade Fragrant B'	VG
		Lanceolate	3	Blc 'Guanmiao City'	
		Elliptic	5	C. 'Queen Sirikhit', Blc 'Chinese Beauty Orchid Queen', Lc 'Manniner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	
		Ovate	7	Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine'	
27. (+) PQ	Lateral sepal apex	Acute	1	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Blc 'Chinese Beauty Orchid Queen', Blc 'Guanmiao City'	MG
		Notched	3	Blc 'Hsinging Catherine', Lc 'Ahmad Sheikhi'	
		Obtuse	5	--	
28. (+) PQ	Lateral sepal curvature	Incurved	1	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Blc 'Chinese Beauty Orchid Queen', Lc 'Manniner Far Horizon x L. anceps coerulea	VG
		Straight	3	Blc 'Guanmiao City', Lc 'Ahmad Sheikhi'	

		Reflexed	5	Blc 'Hsinging Catherine'	
29. QL (d)	Sepal dominant colour	Green	1	--	VG
		White	2	C. 'Queen Sirikhit', Blc 'Hsinging Catherine'	
		Pink	3	--	
		Yellow	4	Blc 'Mem Ann Balmores Convess', Lc 'Ahmad Sheikhi'	
		Red	5	Blc 'Chinese Beauty Orchid Queen'	
		Purple	6	Lc 'Purple Cascade Fragrant B', Lc 'Manriner Far Horizon x L. anceps coerulea'	
		Blue	7	--	
		Violet	8	Blc 'Guanmiao City'	
30. QL (d)	Sepal colour pattern inside	Uniform	1	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Blc 'Hsinging Catherine', Lc 'Manriner Far Horizon x L. anceps coerulea', Lc 'Ahmad Sheikhi'	MG
		Mixed	2	--	
		Spotted	3	Blc 'Guanmiao City'	
		Blotched	4	--	
		Shaded /Striped	5	Blc 'Chinese Beauty Orchid Queen'	
		Netted	6	--	
31. QN (c)	Petal length	Short (<5 cm)	3	Lc 'Purple Cascade Fragrant B', C. 'Queen Sirikhit', Blc 'Guanmiao City'	MS
		Medium (5-10 cm)	5	Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Lc 'Manriner Far Horizon x L. anceps coerulea', Lc 'Ahmad Sheikhi'	
		Long (>10 cm)	7	--	
32. QN (c)	Petal width (at middle)	Narrow (<2 cm)	3	Lc 'Purple Cascade Fragrant B', Blc 'Guanmiao City'	MS
		Medium (2-5 cm)	5	C. 'Queen Sirikhit', Lc 'Manriner Far Horizon x L. anceps coerulea', Lc 'Ahmad Sheikhi'	
		Broad (>5 cm)	7	Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen'	
33. (+) PQ	Petal shape	Oblong	1	--	VG
		Lanceolate	3	--	
		Elliptic	5	Lc 'Purple Cascade Fragrant B', Blc 'Guanmiao City', Lc 'Ahmad Sheikhi'	

		Ovate	7	Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Lc 'Manriner Far Horizon x L. anceps coerulea	
		Round	9	--	
34. (+) PQ	Petal curvature	Incurved	1	Lc 'Purple Cascade Fragrant B', C. 'Queen Sirikhit', Lc 'Manriner Far Horizon x L. anceps coerulea	VG
		Straight	3	Blc 'Mem Ann Balmores Convess', Lc 'Ahmad Sheikhi'	
		Reflexed	5	Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Blc 'Guanmiao City'	
35. (+) PQ	Petal margin	Entire	1	Blc 'Guanmiao City'	VG
		Undulate	3	Lc 'Purple Cascade Fragrant B', Lc 'Ahmad Sheikhi'	
		Undulate crisped	5	Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', C. 'Queen Sirikhit'	
36. (* ) QL (d)	Petal predominant colour	Green	1	--	VG
		White	2	C. 'Queen Sirikhit', Blc 'Hsinging Catherine'	
		Yellow	3	Blc 'Mem Ann Balmores Convess', Blc 'Chinese Beauty Orchid Queen', Lc 'Ahmad Sheikhi'	
		Pink	4	--	
		Red	5	--	
		Purple	6	Lc 'Purple Cascade Fragrant B', Lc 'Manriner Far Horizon x L. anceps coerulea	
		Blue	7	--	
		Violet	8	Blc 'Guanmiao City'	
37. QL (d)	Petal colour pattern	Uniform	1	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Blc 'Hsinging Catherine', Lc 'Manriner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	VG
		Mixed	3	--	
		Spotted	5	Blc 'Guanmiao City'	
		Striped/shaded	7	Blc 'Chinese Beauty Orchid Queen'	
		Netted	9	--	
38.	Lip length	Short	3	Lc 'Purple Cascade Fragrant B'	MG

QN (c)		(<4 cm)			
		Medium (4- 7 cm)	5	C. 'Queen Sirikhit', Blc 'Chinese Beauty Orchid Queen', Blc 'Guanmiao City', Lc 'Manriner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	
		Long (>7 cm)	7	Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine'	
39. QN (c)	Lip width	Narrow (<4 cm)	3	Lc 'Purple Cascade Fragrant B', C. 'Queen Sirikhit', Blc 'Guanmiao City'	MG
		Medium (4- 7 cm)	5	Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Lc 'Manriner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	
		Broad (>7 cm)	7	Blc 'Mem Ann Balmores Convess'	
40. (+) PQ	Lip shape	Oblong	1	Blc 'Hsinging Catherine', Lc 'Ahmad Sheikhi'	VG
		Lanceolate	3	--	
		Elliptic	5	--	
		Ovate	7	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', Blc 'Chinese Beauty Orchid Queen', Lc 'Manriner Far Horizon x L. anceps coerulea	
41. (*) QL (d)	Lip predominant colour	Green	1	--	VS
		White	2	--	
		Yellow	3	Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Lc 'Ahmad Sheikhi'	
		Pink	4	--	
		Red	5	Blc 'Chinese Beauty Orchid Queen',	
		Purple	6	Lc 'Purple Cascade Fragrant B', Blc 'Hsinging Catherine', Blc 'Guanmiao City', Lc 'Manriner Far Horizon x L. anceps coerulea	
		Blue	7	--	
		Violet	8	--	
42. QL (d)	Lip colour (nos.)	One	1	--	VS
		Two	3	Lc 'Purple Cascade Fragrant B', (white & purple), C. 'Queen Sirikhit'(yellow & green), Blc 'Hsinging Catherine'(yellow & purple), Blc 'Chinese Beauty Orchid Queen', (red & purple), Lc 'Ahmad	

				Sheikhi' (yellow & purple)	
		More than two	5	Blc 'Mem Ann Balmores Convess', (green, yellow & orange), Blc 'Guanmiao City', (yellow, purple & violet), Lc 'Manriner Far Horizon x L. anceps coerulea (purple, yellow & green)	
43. (*) QL (d)	Lip colour pattern	Uniform	1	--	VG
		Mixed	3	--	
		Spotted	5	Blc 'Guanmiao City', Lc 'Ahmad Sheikhi'	
		Striped/ Shaded	7	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Lc 'Manriner Far Horizon x L. anceps coerulea	
		Netted	9	--	
44. (+) PQ	Lip lateral lobe shape	Oblong	1	Blc 'Guanmiao City', C. 'Queen Sirikhit', Blc 'Chinese Beauty Orchid Queen'	VG
		Lanceolate	3	--	
		Elliptic	5	--	
		Ovate	7	--	
		Round	9	Blc 'Hsinging Catherine'	
45. (+) PQ	Lip lateral lobe margin	Entire	1	Lc 'Purple Cascade Fragrant B', Lc 'Ahmad Sheikhi'	VG
		Undulate	3	Blc 'Guanmiao City', C. 'Queen Sirikhit', Blc 'Chinese Beauty Orchid Queen', Blc 'Hsinging Catherine'	
		Undulate-crisped	5	Blc 'Mem Ann Balmores Convess'	
46. (+) PQ	Lip mid lobe shape	Oblong	1	Lc 'Purple Cascade Fragrant B', Lc 'Ahmad Sheikhi', Blc 'Mem Ann Balmores Convess', Blc 'Chinese Beauty Orchid Queen'	VG
		Lanceolate	3	--	
		Elliptic	5	--	
		Ovate	7	--	
		Round	9	Blc 'Guanmiao City', Blc 'Hsinging Catherine'	
47. (+) PQ	Lip mid lobe margin	Entire	1	--	VG
		Undulate	3	Lc 'Purple Cascade Fragrant B'	
		Undulate-crisped	5	Lc 'Ahmad Sheikhi', Blc 'Mem Ann Balmores Convess', Blc 'Chinese	

				Beauty Orchid Queen', Blc 'Guanmiao City', Blc 'Hsinging Catherine', C. 'Queen Sirikhit'	
48. PQ	Lip surface inside	Glabrous	1	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', Blc 'Guanmiao City', Lc 'Manriner Far Horizon x L. anceps coerulea	VG
		Bump and ridged	3	--	
		Pubescent/ tubercled	5	C. 'Queen Sirikhit', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Lc 'Ahmad Sheikhi'	
49. QN	Column length	Short (<2 cm)	1	Lc 'Purple Cascade Fragrant B', Blc 'Guanmiao City'	MS
		Long (2 cm or more)	5	Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Lc 'Manriner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	
50. QL (e)	Column colour (nos.)	One	1	Lc 'Manriner Far Horizon x L. anceps coerulea (white)	VG
		Two or more	9	Lc 'Purple Cascade Fragrant B', (purple & green), Blc 'Mem Ann Balmores Convess' (yellow & green) C. 'Queen Sirikhit'(yellow & green), Blc 'Hsinging Catherine' (yellow, green & white), Blc 'Chinese Beauty Orchid Queen', (red, purple & yellow), Blc 'Guanmiao City'(purple, yellow & white), Lc 'Ahmad Sheikhi' (yellow & green)	
51. QL (e)	Column colour pattern	Uniform	1	Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Lc 'Manriner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	VG
		Spotted	3	Blc 'Guanmiao City'	
		Blotched	5	--	
		Streaked / striped /shaded	7	Lc 'Purple Cascade Fragrant B', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen'	
52. QN (c)	Length of flower pedicel (with ovary)	Short (<5 cm)	1	Lc 'Purple Cascade Fragrant B', C. 'Queen Sirikhit', Blc 'Guanmiao City'	MS
		Long (5 cm or more)	5	Blc 'Mem Ann Balmores Convess', Blc 'Hsinging Catherine', Blc 'Chinese Beauty Orchid Queen', Lc 'Manriner	



				Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	
53. PQ	Flowering season	Winter	1	Blc 'Chinese Beauty Orchid Queen', Blc 'Guanmiao City', Lc 'Manriner Far Horizon x L. anceps coerulea, Lc 'Ahmad Sheikhi'	VG
		Summer	3	--	
		Rainy	5	Lc 'Purple Cascade Fragrant B', Blc 'Mem Ann Balmores Convess', C. 'Queen Sirikhit', Blc 'Hsinging Catherine'	
		Year round	7	--	

## VIII. Explanation on the Table of Characteristics

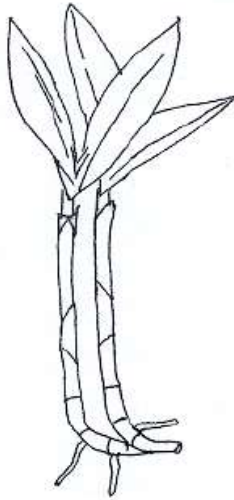
### 8.1 Guidelines for recording the observations of vegetative and flowering characteristics

Characteristics indicated with (a), (b), (c), (d) and (e) in the first column of the Table of Characteristics should be examined as indicated below:

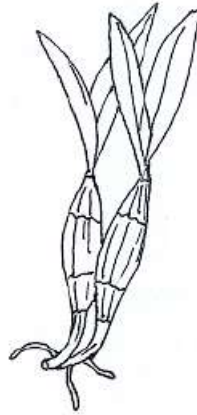
- (a) Observations on the leaf should be made on the longest leaf of flowering plant..
- (b) Observations on the inflorescence and the flower shall be made at the time when 50% of the flowers on the inflorescence have opened and the most recently fully opened flower on the inflorescence before the color starts to fade.
- (c) Observations on the length and width of the flower and parts of the flower shall be made on the spread out positions.
- (d) Observations on the color of the sepal, the petal and the lip shall be made on inner side at apex, mid and base portion.
- (e) Observations on the colour of column shall be made on inner side at apex, mid and basal region.

## 8.2 Explanation for individual characteristics

### Characteristic 2: Nature of pseudobulb



**1**  
**Cylindric**



**3**  
**Clavate**



**5**  
**Globular/Ovoid**

### Characteristic 9: Leaf shape



**1**  
**Narrow oblong**



**3**  
**Ligulate**



**5**  
**Elliptic**



**7**  
**Ovate**

### Characteristics 21 & 26: Dorsal sepal shape (21) and Lateral sepal shape (26)



**1**  
**Oblong**



**3**  
**Lanceolate**



**5**  
**Elliptic**



**7**  
**Ovate**

**Characteristics 22 & 27: Dorsal sepal apex (22) and Lateral sepal apex (27)**



**1**  
**Acute**



**3**  
**Notched**



**5**  
**Obtuse**

**Characteristics 23, 28 & 34: Dorsal sepal curvature (23), Lateral sepal curvature (28) and Petal curvature (34)**



**1**  
**Incurved**



**3**  
**Straight**



**5**  
**Reflexed**

**Characteristics 33, 44 & 46: Petal shape (33), Lip lateral lobe shape (44) and Lip mid lobe shape (46)**



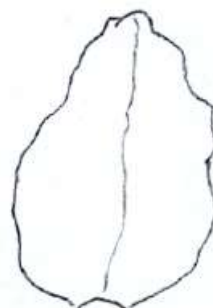
**1**  
**Oblong**



**3**  
**Lanceolate**



**5**  
**Elliptic**

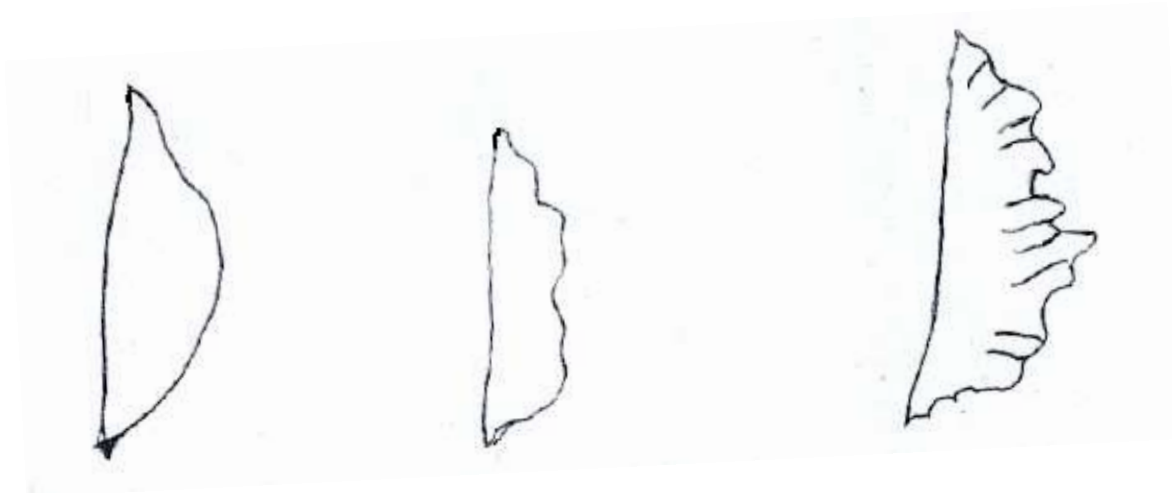


**7**  
**Ovate**



**9**  
**Round**

**Characteristics 35, 45 & 47: Petal margin (35), Lip lateral lobe margin (45) and Lip mid lobe margin (47)**



**1**  
**Entire**

**3**  
**Undulate**

**5**  
**Undulate crisped**

## **IX. Literature:**

Carl L Withnar and Patricia Harding, 2004. *The Cattleyas and their Relatives*, Timber Press, 2-3 Wills Road, Totnes, UK, 152 pp.

Karasawa, K. 1996. *Orchids*, pp.510-538. Yama to Keikokusha, Tohyo, Japan (Japanese)  
*Encyclopedia of Horticulture*. Vol.9, pp.71-75, Seibun -Do Shinkosha, Tokyo, Japan (Japanese)

*The Grand Dictionary of Horticulture*, Vol.5. pp 483-491, Shougakukan, Tokyo, Japan (Japanese)

## **X. Working Group Details:**

These test guidelines developed by the National Core Committee in consultation with the Nodal Officer, DUS test centre, NRC for Orchids and Task Force (7/2011) constituted by the PPV & FR Authority.

### Members of the Task Force (7/2011)

Dr. A.N. Rao	Director (R&D), Centre for Orchid Gene Conservation of Eastern Himalayan Region Hengbung, Senapati Distt., Manipur -	Chairman
Dr. P. K. Rajeevan	Professor and Head Department of Pomology and Floriculture, College of Horticulture, Kerala Agricultural University, Trichur – 680656, Kerala	Member
Dr. Sita Ram Dhiman	Floriculturist, Department of Floriculture and Landscaping Dr. Y.S. Parmar University of Horticulture and Forestry, Nauni-Solan – 173230 (HP)	Member
Dr. Manoj Srivastava	Registrar, Protection of Plant Varieties and Farmers' Rights Authority New Delhi - 110012	Member
Dr. L.C. De	Principal Scientist, National Research Centre for Orchids Pakyong-737106, Sikkim	Member Secretary

### IX. Name of DUS Test Centres

Nodal DUS Test Centre	Other Test Centre
National Research Centre for Orchids, Pakyong-737106, Sikkim	1. State Forest Research Institute, Orchid Research Centre, Tipi, West Kameng Distt., Arunachal Pradesh  2. Department of Pomology and Floriculture, College of Horticulture, Kerala Agricultural University, Trichur