

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

on

Orchid
Dendrobium

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

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I. Subject

These test guidelines apply to all vegetatively propagated varieties of *Dendrobium* Sw. 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, only 2 to 3 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 or 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 Tests

1. A test shall normally be conducted for two flowering seasons.
2. Test shall normally be conducted at two places. If any essential characteristics of the variety are 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 expressed request of the applicant.
3. The test shall be carried out in the greenhouse under conditions ensuring normal growth for the plant concerned. The size of the pots/ containers shall be such that plants or parts of 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 shall include a total of 10 plants.

4. Test shall be done only in pots of prescribed size. The pots shall be kept at a standard spacing recommended for each type or at the spacing specified by the applicant.
5. Additional tests for special purposes may be established.
6. 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 of 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 positions.
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 candidate varieties for DUS test shall be divided into groups to facilitate the assessment of Distinctiveness. Characteristics which are known from experience not to vary or to vary slightly within a variety and which in their various states are fairly evenly distributed across all varieties in the collection, are suitable for grouping purpose.
2. The following characteristics shall be used for grouping of Dendrobium varieties and hybrids:
 - a) Plant: height (Characteristic 1)
 - b) Internode: number (Characteristics 3)
 - c) Inflorescence: number per shoot per year (Characteristic 10)
 - d) Flower size: width in front view (Characteristic 16)
 - e) Flower: predominant colour (Characteristic 25 & 32)
 - f) Lip: predominant colour (Characteristic 41)
 - g) Lip: colour pattern (Characteristic 43)
 - h) Flowering: season (Characteristics 52)

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)	Very small (<20 cm)	1	Den. 'Bangkok Blue', Den. 'Erika'	MS
		Small (20-40 cm)	3	Den. 'Burana Stripe', Den. 'Big White-4N', Den. 'Thongchai Gold', Den. 'Julie', Den. 'Big White Jumbo', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Triple Pink'	
		Medium (41-60 cm)	5	Den. 'Abraham', Den. 'Madam Pink'	
		Large (61-80 cm)	7	Den. 'Emma White',	
		Very large (>80 cm)	9	-	
2. (+) * QN (a)	Nature of shoot (at flowering)	Cane (woody)	1	-	VG
		Cane (cylindric fleshy)	3	-	
		Cane (clavate fleshy)	5	Den. 'Bangkok Blue', Den. 'Big White Jumbo', Den. 'Thongchai Gold', Den. 'Erika', Den. 'Triple Pink',	

				Den. 'Madam Pink'	
		Bulbous (round)	7	Den. 'Julie'	
3. * QN (a)	Internode number (flowering shoot)	Few (<5)	1		VS
		Medium (5-10)	3	Den. 'Big White-4N', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Erika', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Madam Pink', Den. 'Triple Pink'	
		Many (>10)	5	Den. 'Abraham', Den. 'Emma White', Den. 'Big White Jumbo', Den. 'Lervia', Den. 'Kating Dang'	
4. QN (a)	Internode diameter (widest part of shoot)	Small (<2.0 cm)	1	Den. 'Abraham', Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink', Den. 'Triple Pink'	MS
		Medium (2.0-4.0 cm)	3	Den. 'Julie'	
		Large (>4.0 cm)	5		
5. QN (a)	Number of leaves (on flowering shoot)	Absent	1		MS
		Few (<3)	3		
		Medium (3-6)	5	Den. 'Big White-4N', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Erika', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang',	

				Den. 'Triple Pink'	
		Many (>6)	7	Den. 'Abraham', Den. 'Emma White', Den. 'Big White Jumbo', Den. 'Lervia', Den. 'Madam Pink'	
6. QN (a)	Leaf length (largest leaf)	Very short (< 5.0 cm)	1		MS
		Short (5.0-10.0 cm)	3	Den. 'Bangkok Blue', Den. 'Erika', Den. 'Earsakul'	
		Medium (10.1-15.0 cm)	5	Den. 'Burana Stripe', Den. 'Big White-4N', Den. 'Thongchai Gold', Den. 'Big White Jumbo', Den. 'Lervia', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink', Den. 'Triple Pink'	
		Long (>15.0 cm)	7	Den. 'Abraham', Den. 'Emma White', Den. 'Julie'	
7. QN (a)	Leaf width (largest leaf)	Narrow (<2.0 cm)	1	Den. 'Julie', Den. 'Erika'	MS
		Medium (2.0-4.0 cm)	3	Den. 'Abraham', Den. 'Emma White', Den. 'Big White-4N', Den. 'Bangkok Blue', Den. 'Earsakul', Den. 'Triple Pink'	
		Broad (4.1-6.0cm)	5	Den. 'Emma White', Den. 'Big White Jumbo', Den. 'Lervia', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink'	
		Very broad (>6.0 cm)	7	Den. 'Thongchai Gold'	
8. (+) PQ (a)	Leaf shape (largest leaf)	Linear	1	Den. 'Julie'	VG
		Elliptic	3	Den. 'Erika'	
		Lanceolate	5	Den. 'Abraham', Den. 'Big White-4N', Den. 'Emma White', Den. 'Bangkok Blue', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Madam Pink', Den. 'Triple Pink'	

		Ovate	7	Den. 'Thongchai Gold', Den. 'Big White Jumbo', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang'	
9. (+) PQ (a)	Leaf apex (largest leaf)	Acute	1	Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Julie', Den. 'Erika', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink', Den. 'Triple Pink'	VG
		Obtuse	3		
		Bilobed	5	Den. 'Big White Jumbo'	
		Retuse	7	Den. 'Abraham', Den. 'Bangkok Blue'	
		Acuminate	9	-	
10. * QN (b)	Inflorescence: number per plant	Few (< 3)	1	Den. 'Abraham', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Triple Pink', Den. 'Big White-4N', Den. 'Madam Pink'	VS
		Medium (3-5)	3	Den. 'Bangkok Blue', Den. 'Julie'	
		Many (> 5)	5	Den. 'Earsakul', Den. 'Emma White', Den. 'Thongchai Gold'	
11. PQ (b)	Inflorescence orientation	Erect	1	Den. 'Abraham', Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink', Den. 'Triple Pink'	VG

		Horizontal	3		
		Arching	5		
		Pendulus	7		
12. * QN (b)	Inflorescence length	Short (<20 cm)	1	Den. 'Thongchai Gold', Den. 'Big White Jumbo',	MS
		Medium (20-40 cm)	3	Den. 'Emma White', Den. 'Abraham', Den. 'Big White-4N', Den. 'Emma White', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Erika', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Triple Pink'	
		Long (41-60 cm)	5	Den. 'Madam Pink'	
		Very long (>60 cm)	7	-	
13. QN (b)	Peduncle length (Base of inflorescence to the 1 st Flower)	Short (<10 cm)	1	-	MS
		Medium (10-20 cm)	3	Den. 'Bangkok Blue', Den. 'Julie', Den. 'Erika', Den. 'Lervia', Den. 'Earsakul', Den. 'Madam Pink', Den. 'Triple Pink'	
		Long (>20 cm)	5	Den. 'Emma White', Den. 'Abraham', Den. 'Big White-4N'	
14. * QN (b)	Flower number per inflorescence	Few (< 7)	1	Den. 'Big White-4N', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Earsakul', Den. 'Kating Dang', Den. 'Madam Pink', Den. 'Triple Pink'	MS
		Medium (7-10)	3	Den. 'Abraham', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia'	
		Many (>10)	5	Den. 'Emma White', Den. 'Julie', Den. 'Dang Saard'	
15. QN (c)	Flower Length (Tip of dorsal)	Short (<3.0 cm)	1		MS
		Medium	3	Den. 'Abraham',	

	sepal to tip of lip)	(3.0-6.0 cm)		Den. 'Emma White', Den. 'Big White-4N', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink', Den. 'Triple Pink'	
		Long (>6.0 cm)	5	Den. 'Earsakul'	
16. * QN (c)	Flower width in front view (Tip distance of two lateral petals)	Narrow (<3.0 cm)	1		MS
		Medium (3.0-6.0 cm)	3	Den. 'Abraham', Den. 'Emma White', Den. 'Julie', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Dang Saard'	
		Broad (>6.0 cm)	5	Den. 'Abraham', Den. 'Big White-4N', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Lervia', Den. 'Earsakul', Den. 'Kating Dang', Den. 'Madam Pink', Den. 'Triple Pink'	
17. QL (b)	Flower fragrance	Absent	1	Den. 'Abraham', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Julie', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink'	VG
		Present	9	Den. 'Big White-4N', Den. 'Bangkok Blue', Den. 'Lervia', Den. 'Triple Pink'	
18. QN (b)	Flower longevity on the plant	Short (<15 days)	1		VG
		Medium (15-30 days)	3	Den. 'Julie',	
		Long	5	Den. 'Abraham',	

		(> 30 days)		Den. Bangkok Blue, Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink', Den. 'Triple Pink'	
19. QN (c)	Dorsal sepal length	Short (<2.0 cm)	1	-	MS
		Medium (2.0-4.0 cm)	3	Den. 'Abraham', Den. 'Emma White', Den. 'Big White-4N', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink'	
		Long (> 4.0 cm)	5	Den. 'Earsakul', Den. 'Triple Pink'	
20. QN (c)	Dorsal sepal width (at middle)	Narrow (<1.0 cm)	1	-	MS
		Medium (1.0-2.0 cm)	3	Den. 'Abraham', Den. 'Big White-4N', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink'	
		Broad (>2.0cm)	5	Den. 'Triple Pink'	
21. (+) PQ (c)	Dorsal sepal shape	Linear	1		VG
		Oblong	3	Den. 'Big White-4N', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Earsakul', Den. 'Dang Saard',	

				Den. 'Kating Dang', Den. 'Madam Pink', Den. 'Triple Pink'	
		Elliptic	5	Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia'	
		Obovate	7	Den. 'Emma White',	
		Orbicular	9	Den. 'Renappa'	
22. (+) PQ (c)	Dorsal sepal apex	Acute	1	Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Dang Saard', Den. 'Kating Dang'	VG
		Acuminate	3	Den. 'Abraham', Den. 'Earsakul', Den. 'Madam Pink', Den. 'Triple Pink'	
		Obtuse	5	Den. 'Thongchai Gold'	
		Retuse	7	-	
23. (+) PQ (c)	Lateral sepal shape	Linear	1		VG
		Oblong	3	Den. 'Julie', Den. 'Erika'	
		Elliptic	5		
		Obovate	7	Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Big White Jumbo', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang'	
		Triangular	9	Den. 'Bangkok Blue', Den. 'Lervia', Den. 'Madam Pink', Den. 'Triple Pink'	
24. (+) PQ (c)	Lateral sepal apex	Acute	1	Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Dang Saard', Den. 'Kating Dang'	MG
		Acuminate	3	Den. 'Abraham',	

				Den. 'Earsakul', Den. 'Madam Pink', Den. 'Triple Pink'	
		Obtuse	5		
25. QL (d)	Sepal dominant colour	Green	1	Den. 'Dang Saard'	VG
		White	2	Den. 'Big White-4N', Den. 'Emma White', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia'	
		Pink	3		
		Yellow	4	Den. 'Thongchai Gold'	
		Red	5	Den. 'Julie', Den. 'Kating Dang'	
		Purple	6	Den. 'Abraham', Den. 'Bangkok Blue', Den. 'Earsakul', Den. 'Madam Pink', Den. 'Triple Pink'	
		Blue	7		
		Violet	8		
26. QL (d)	Sepal colour pattern inside	Uniform	1		MG
		Mixed	2	Den. 'Julie', Den. 'Earsakul'	
		Spotted	3		
		Blotched	4		
		Shaded /Striped	5	Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Big White Jumbo', Den. 'Lervia', Den. 'Dang Saard', Den. 'Madam Pink'	
		Netted	6	Den. 'Abraham', Den. 'Bangkok Blue', Den. 'Kating Dang', Den. 'Triple Pink'	
27. QN (c)	Petal length	Short (<2.0 cm)	1		MG
		Medium (2.0-4.0 cm)	3	Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink'	

		Long (> 4.0 cm)	5	Den. 'Earsakul', Den. 'Triple Pink'	
28. QN (c)	Petal width (at middle)	Narrow (<2.0 cm)	1	Den. 'Julie' Den. 'Emma White', Den. 'Abraham', Den. 'Lervia', Den. 'Dang Saard', Den. 'Kating Dang'	MS
		Medium (2.0-3.0 cm)	3	Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Earsakul', Den. 'Madam Pink'	
		Broad (>3.0 cm)	5	Den. 'Triple Pink' Den. 'Renappa'	
29. (+) PQ (c)	Petal shape	Linear	1		VG
		Oblong	3		
		Elliptic	5	Den. 'Earsakul'	
		Obovate	7	Den. 'Abraham', Den. 'Emma White', Den. 'Big White-4N', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Erika', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink', Den. 'Triple Pink'	
		Ovate	9	Den. 'Big White Jumbo',	
30. (+) PQ (c)	Petal curvature	Straight	1	-	VG
		Deflexed	3	Den. 'Abraham', Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Earsakul', Den. 'Kating Dang', Den. 'Madam Pink', Den. 'Triple Pink'	
		Spiral	5		
31. (+) PQ (c)	Petal apex	Acute	1	Den. 'Emma White', Den. 'Bangkok Blue', Den. 'Kating Dang', Den. 'Madam Pink',	VG

				Den. 'Triple Pink'	
		Acuminate	3	Den. 'Abraham', Den. 'Earsakul'	
		Obtuse	5	Den. 'Big White-4N', Den. 'Julie'	
		Retuse	7	Den. 'Thongchai Gold', Den. 'Erika', Den. 'Lervia', Den. 'Dang Saard', Den. 'Big White Jumbo'	
32. QL (d)	Petal predominant colour	Green	1	Den. 'Daang Saard',	VG
		White	2	Den. 'Big White 4N', Den. 'Emma White', Den. 'Big White Jumbo', Den. 'Lervia'	
		Yellow	3	Den. 'Thongchai Gold'	
		Pink	4	Den. 'Madam Pink', Den. 'Triple Pink', Den. 'Earsakul'	
		Red	5	Den. 'Kating Dang'	
		Purple	6	Den. 'A. Abraham', Den. 'Madam Pink',	
		Blue	7	Den. 'Thongchai Blue'	
		Violet	8	Den. 'Bangkok Blue'	
33. QL (d)	Petal colour (No.) inside	Single	1	Den. 'A. Abraham'(purple), Den. 'Big White 4N'(white), Den. 'Emma White'(white), Den. 'Big White Jumbo'(white), Den. 'Kating Dang' (red purple), Den. 'Madam Pink'(purple)	VG
		Double	3	Den. 'Bangkok Blue'(purple violet, violet), Den. 'Julie'(red purple, yellow orange), Den. 'Daang Saard' (yellow green), Den. 'Kating Dang'(red, purple)	
		Triple or more	5		
34. QL (d)	Petal colour pattern	Uniform	1	Den. 'Big White-4N, Den. 'Emma White', Den. 'Big White Jumbo', Den. 'Dang Saard'	VG
		Mixed	3	Den. 'Abraham', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Earsakul', Den. 'Triple Pink'	
		Spotted	5		
		Striped/ shaded	7	Den. 'Thongchai Gold', Den. 'Lervia', Den. 'Madam Pink'	
		Netted	9	Den. 'Kating Dang'	

35. QN (c).	Lip length	Short (< 2 cm)	1	Den. 'Julie'	MG
		Medium (2-4 cm)	3	Den. 'Abraham', Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink', Den. 'Triple Pink'	
		Long (>4 cm)	5		
36. * QN (c)	Lip width	Narrow (<2 cm)	1	Den. 'Julie'	MG
		Medium (2-4 cm)	3	Den. 'Abraham', Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink'	
		Broad (>4 cm)	5	Den. 'Triple Pink'	
37. (+) PQ (c)	Lip shape	Ovate	1		VG
		Oblanceolate	3		
		Orbicular	5	Den. 'Abraham', Den. 'Big White-4N',	
		Obovate	7		
38. (+) PQ (c)	Lip apex	Acute	1	Den. 'Bangkok Blue', Den. 'Julie', Den. 'Lervia', Den. 'Kating Dang', Den. 'Triple Pink'	VG
		Obtuse	3	Den. 'Abraham', Den. 'Big White-4N', Den. 'Thongchai Gold', Den. 'Erika', Den. 'Dang Saard', Den. 'Madam Pink'	

		Retuse	5	Den. 'Big White Jumbo'	
		Praemorse	7	Den. 'Emma White',	
		Acuminate	9	Den. 'Earsakul'	
39. PQ (c)	Lip curvature	Straight	1	Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Erika', Den. 'Kating Dang', Den. 'Triple Pink'	VG
		Reflexed with straight apex	3	Den. 'Abraham'	
		Reflexed with curved apex	5	Den. 'Big White-4N', Den. 'Big White Jumbo', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Madam Pink'	
		Incurved with straight apex	7		
40. * PQ (c)	Lip lobation	Absent	1		VG
		Present	9	Den. 'Abraham', Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink', Den. 'Triple Pink'	
41. * QL (d)	Lip predominant colour	Green	1		VS
		White	2	Den. 'Big White-4N', Den. 'Emma White', Den. 'Big White Jumbo'	
		Yellow	3	Den. 'Thongchai Gold'	
		Pink	4		
		Red	5	Den. 'Kating Dang'	
		Purple	6	Den. 'Abraham', Den. 'Julie', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Madam Pink'	
		Blue	7	Den. 'Thongchai Blue'	

		Violet	8	Den. 'Bangkok Blue', Den. 'Erika', Den. 'Triple Pink'	
42. QL (d)	Lip colour (Nos.)	Single	1	Den. 'Thongchai Gold'(yellow green), Den. 'Madam Pink'(purple),	VS
		Double	3	Den. 'Abraham'(purple, green yellow), Den. 'Lervia'(purple, yellow green), Den. 'Earsakul' (purple, green yellow), Den. 'Big White-4N'(white, yellow green), Den. 'Emma White'(white, yellow green), Den. 'Big White Jumbo'(white, yellow green), Den. 'Bangkok Blue' (purple violet, white),	
		Triple or more	5	Den. 'Dang Saard'(red purple, yellow, green), Den. 'Triple Pink'(purple, purple violet, white)	
43. * QL (d)	Lip colour pattern	Uniform	1	Den. 'Big White Jumbo'	VG
		Mixed	3		
		Spotted	5		
		Striped/ Shaded	7	Den. 'Abraham', Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Julie', Den. 'Triple Pink'	
		Netted	9	Den. 'Bangkok Blue', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink'	
44. (+) PQ (c)	Lip margin	Entire	1	Den. 'Abraham', Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Triple Pink'	VG
		Undulate	3	Den. 'Big White Jumbo', Den. 'Erika', Den. 'Kating Dang'	

		Fimbriate	5	Den. 'Abraham', Den. 'Big White-4N', Den. 'Emma White', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Big White-4N', Den. 'Thongchai Gold',	
45. PQ (c)	Lip callus	Absent	1		VG
		Present	9	Den. 'Abraham'(5), Den. 'Big White-4N'(5), Den. 'Emma White',(5), Den. 'Thongchai Gold', Den. 'Bangkok Blue' (5), Den. 'Julie' (3), Den. 'Big White Jumbo'(5), Den. 'Erika' (5), Den. 'Lervia'(5), Den. 'Earsakul'(5), Den. 'Dang Saard'(5), Den. 'Kating Dang'(7), Den. 'Madam Pink'(5), Den. 'Triple Pink'(5)	
46. PQ (c)	Lip surface texture	Glabrous	1	Den. 'Abraham', Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Bangkok Blue', Den. 'Julie', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink', Den. 'Triple Pink'	VG
		Pubescent	9		
47. QN (c)	Column width across stigma	Narrow (<0.5 cm)	1		MS
		Medium (0.5-1.0 cm)	3	Den. 'Abraham', Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Bangkok Blue,	

				Den. 'Julie', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink', Den. 'Triple Pink'	
		Broad (>1.0 cm)	5	Den. 'Earsakul'	
48. QL (e)	Column colour (Nos.)	Single	1	Den. 'Emma White'(white), Den. 'Lervia'(white), Den. 'Abraham'(purple), Den. 'Julie' (red purple), Den. 'Big White-4N'(green white), Den. 'Big White Jumbo' (green white)	VG
		Double	3	Den. 'Earsakul' (red purple, white), Den. 'Erika' (purple, green white), Den. 'Kating Dang'(purple, green white), Den. 'Madam Pink'(purple, white), Den. 'Triple Pink'(white, purple)	
		Triple or more	5		
49. QL (e)	Column colour pattern	Uniform	1	Den. 'Abraham', Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Julie', Den. 'Big White Jumbo', Den. 'Dang Saard'	VG
		Spotted	3	Den. 'Madam Pink', Den. 'Triple Pink'	
		Blotch	5	Den. 'Earsakul', Den. 'Kating Dang'	
		Streaked / striped /shaded	7	Den. 'Bangkok Blue', Den. 'Lervia', Den. 'Abraham'	
50. QL	Anther cap colour	White	1	Den. 'Bangkok Blue', Den. 'Madam Pink'	VG
		Yellow	3	Den. 'Big White-4N', Den. 'Emma White', Den. 'Lervia', Den. 'Kating Dang', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Dang Saard', Den. 'Earsakul', Den. 'Triple Pink'	
		Purple	5	Den. 'Abraham', Den. 'Julie',	

51. QN (c)	Spur / Mentum length	Short (< 1.5 cm)	1	Den. 'Big White-4N', Den. 'Emma White', Den. 'Thongchai Gold', Den. 'Julie', Den. 'Erika', Den. 'Earsakul', Den. 'Dang Saard', Den. 'Kating Dang', Den. 'Madam Pink'	MS
		Medium (1.5-2.0 cm)	3	Den. 'Abraham', Den. 'Bangkok Blue', Den. 'Big White Jumbo', Den. 'Lervia'	
		Long (>2.0 cm)	5	Den. 'Triple Pink'	
52. * PQ	Flowering season	Winter	1		VG
		Spring	3	Den. 'Abraham', Den. 'Big White-4N', Den. 'Thongchai Gold', Den. 'Bangkok Blue'	
		Summer	5	Den. 'Julie', Den. 'Big White Jumbo', Den. 'Erika', Den. 'Lervia', Den. 'Dang Saard'	
		Rainy	7	Den. 'Abraham', Den. 'Kating Dang', Den. 'Madam Pink', Den. 'Triple Pink'	
		Year round	9	Den. 'Earsakul', Den. 'Emma White',	

VIII. Explanations 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, shoot and internode length shall be made on the flowering shoot.
- (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 Explanations for individual characteristics

Characteristics 2: Nature of shoot



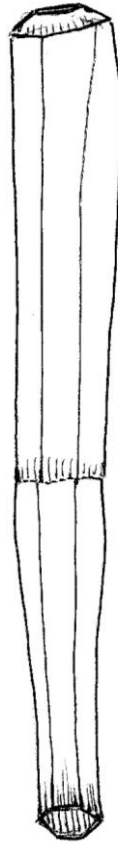
1

Cane (woody)



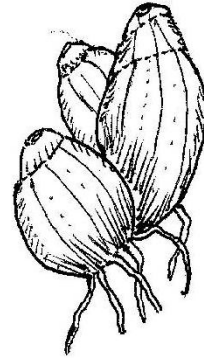
3

Cane cylindric (fleshy)



5

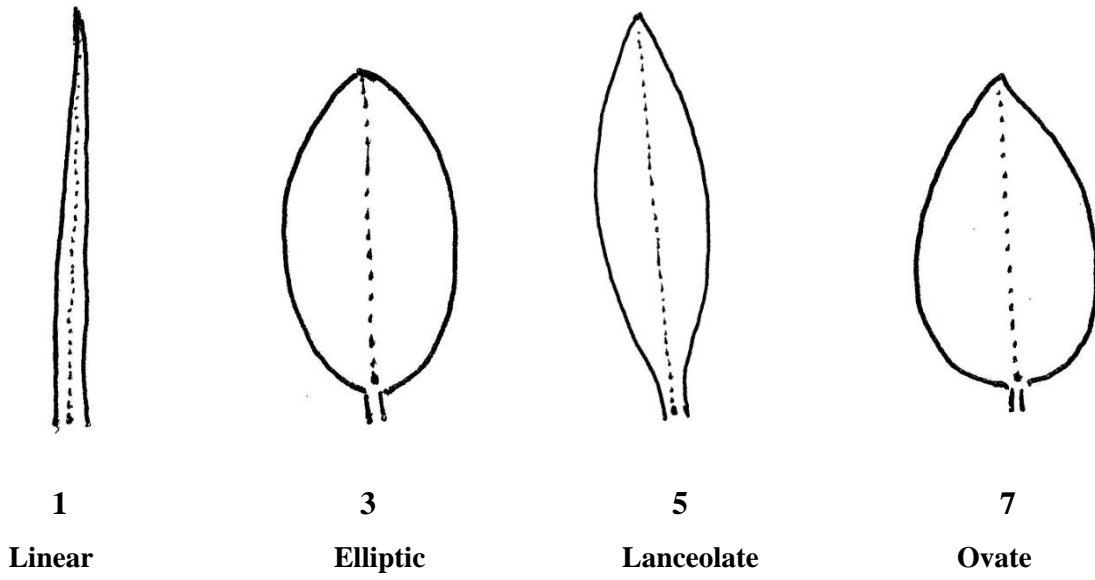
Cane clavate fleshy



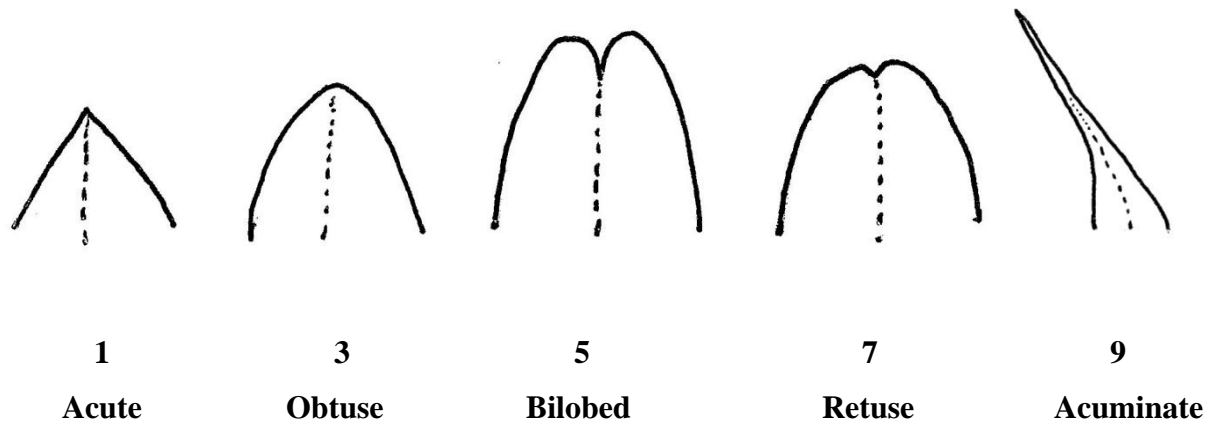
7

Bulbous (round)

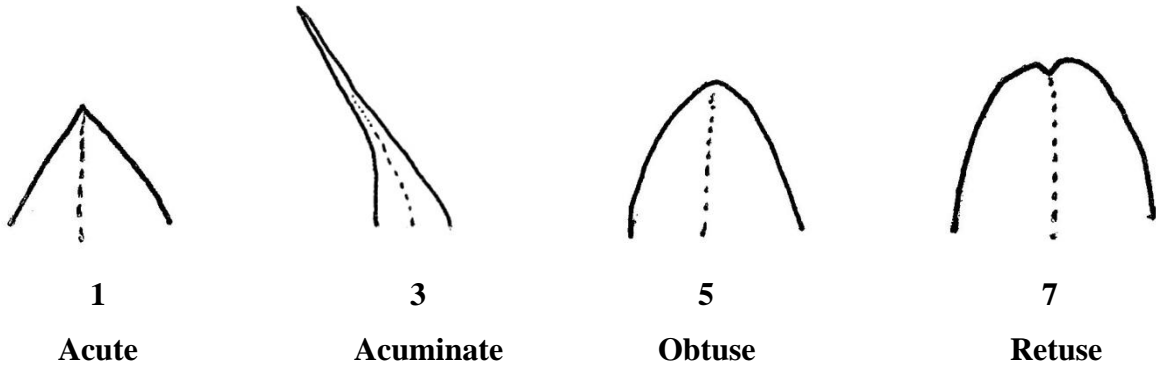
Characteristics 8 : Leaf shape



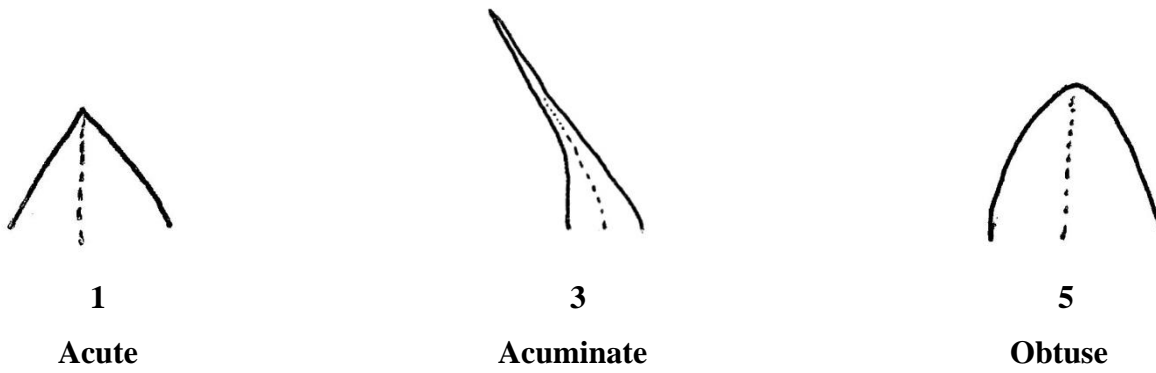
Characteristics 9: Apex of leaf



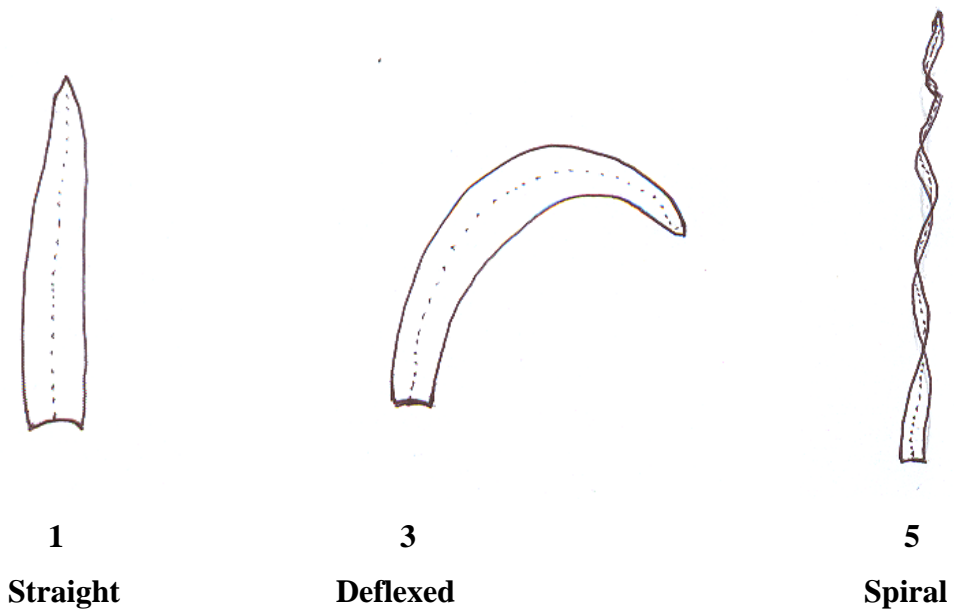
Characteristics 22 & 31: Apex of dorsal sepal & petal



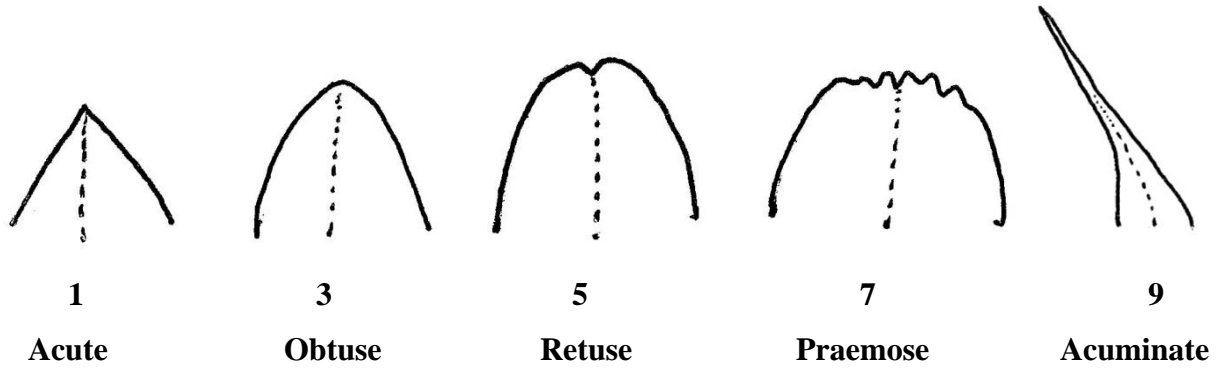
Characteristics 24: Apex of lateral sepal



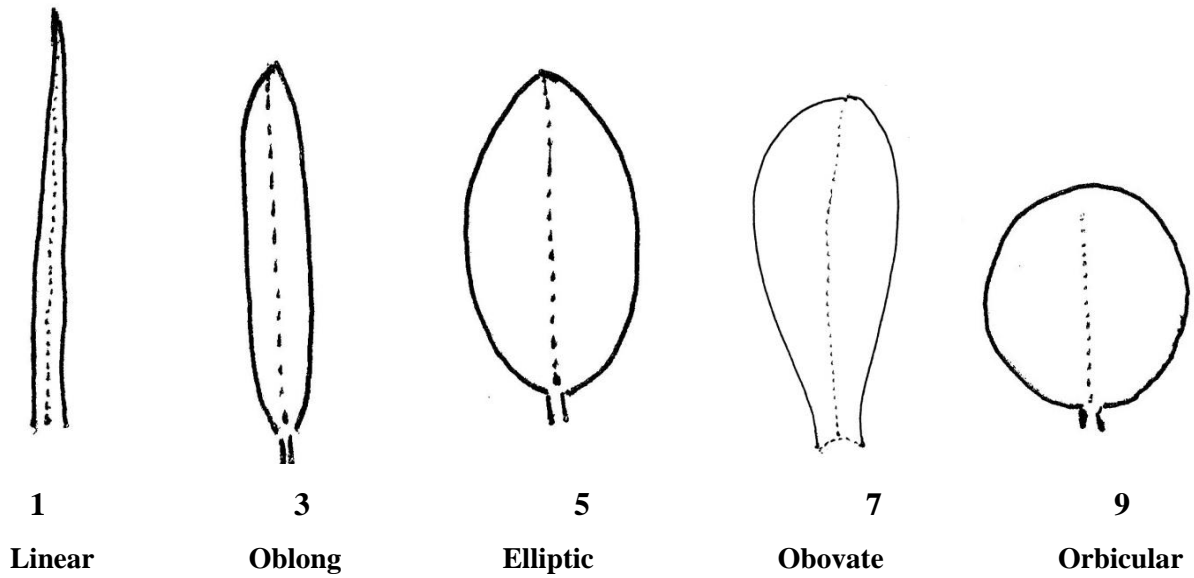
Characteristics 30: Petal curvature



Characteristics 38: Apex of lip



Characteristics 21: Dorsal sepal shape



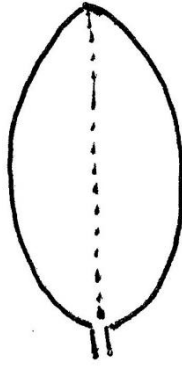
Characteristics 23: Lateral sepal shape



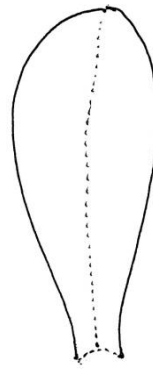
1
Linear



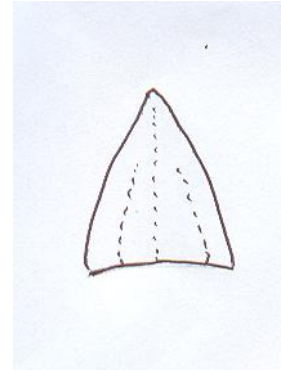
3
Oblong



5
Elliptic



7
Obovate



9
Triangular

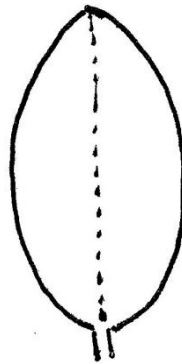
Characteristics 29: Petal shape



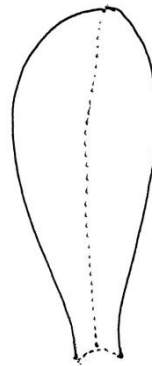
1
Linear



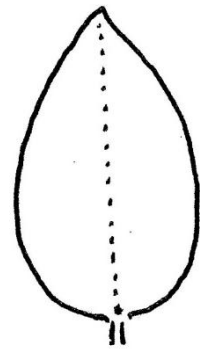
3
Oblong



5
Elliptic

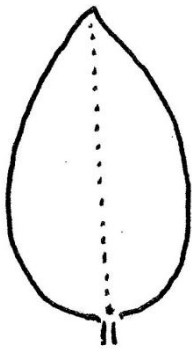


7
Obovate

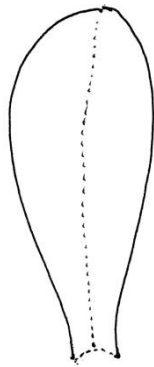


9
Ovate

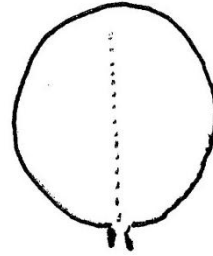
Characteristics 37 : Lip shape



1
Ovate



3
Obovate



5
Orbicular



7
Oblanceolate

Characteristics 44: Lip margin



1
Entire



3
Undulate



5
Fimbriate

IX. Literature:

Greatwood, J., Hunt, P.F., Gribb, P.J. and Steward, J. (eds.), 1993: (4th Edition): *The handbook on orchid nomenclature and registration*. The International Orchid Commission, London, United Kingdom

Henke de Greef, 2008: *Details about D.U.S. Testing for Plant Breeders Rights in Orchids in Europe*. Abstracted in Taiwan International Orchid Symposium.

Karasawa, K. "*Orchid Atlas*", Vol. 6 *Cymbidium and Lycaste*, Orchid Atlas Publishing Society, c/o Yasaka Syobo, Inc. Tokyo, Japan

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 (8/2009) constituted by the PPV & FR Authority.

Members of the Task Force (8/2009)

Dr. A.N. Rao	-	Chairman
Dr. P. K. Rajeevan	-	Member
Prof. S.K. Sood	-	Member
Dr. G.S. Rawat	-	Member
Dr. L.C. De	-	Member Secretary

Nodal Officer:

Dr. L.C. De, Principal Scientist, National Research Centre for Orchids, Pakyong, Sikkim

XI. Name of DUS Test Centres

Nodal DUS Centre	Other Test Centre
National Research Centre for Orchids, Pakyong-737106, Sikkim	1. State Forest Research Institute, Chimpur, Itanagar, Arunachal Pradesh 2. College of Horticulture, Kerala Agricultural University, Trichur

