



**European Union
Community Plant Variety Office**

PROTOCOL FOR DISTINCTNESS, UNIFORMITY AND STABILITY TESTS

Anthurium Schott

ANTHURIUM

UPOV Species Code: ANTHU

Adopted on 14th November 2007

I - SUBJECT OF THE PROTOCOL

The protocol describes the technical procedures to be followed in order to meet the requirement of Council Regulation (EC) No. 2100/94 on Community Plant Variety Rights. The technical procedures have been agreed by the Administrative Council and are based on general UPOV Document TG/1/3 and UPOV Guideline TG/86/5 dated 20th October 1995 for the conduct of tests for Distinctness, Uniformity and Stability and conclusions of the ornamental experts' meeting of 19th and 20th September 2007. This protocol applies to all vegetatively propagated varieties of *Anthurium Schott*.

II - SUBMISSION OF PLANT MATERIAL

1. The Community Plant Variety Office (CPVO) is responsible for informing the applicant of

- the closing date for the receipt of plant material;
- the minimum amount and quality of plant material required;
- the Examination Office to which material is to be sent.

The applicant is responsible for ensuring compliance with any customs and plant health requirements.

2. Final dates for receipt of documentation and material by the Examination Office

The final dates for receipt of requests, technical questionnaires and the final date or submission period for plant material will be decided by the CPVO and each Examination Office chosen.

The Examination Office is responsible for immediately acknowledging the receipt of requests for testing, and technical questionnaires. If no or unsatisfactory plant material is submitted the CPVO should be informed as soon as possible.

3. Plant material requirements

Information with respect to closing dates and submission requirements of plant material for the technical examination of varieties can be found on the CPVO website (www.cpvo.europa.eu) and in the special Issue S2 of the Official Gazette of the Office published yearly in the month of September.

Quality: The plant material supplied should be visibly healthy, not lacking in vigour or affected by any important pest or disease, especially viruses, as laid down in Council Directive 2000/29/EC and its amendments, or organisms impairing quality as indicated in Council Directive 98/56/EEC and Commission Directive 93/49/EEC and their amendments.

The plant material must not have undergone any treatment unless the CPVO and the Examination Office allow or request such treatment. If it has been treated, full details of the treatment must be given.

Labelling of sample: - Species
- File number of the application allocated by the CPVO
- Breeder's reference
- Examination reference (if known)
- Name of applicant
- The phrase "On request of the CPVO"

III - CONDUCT OF TESTS

1. Variety collection

A variety collection will be maintained for the purpose of establishing distinctness of the candidate varieties in test. A variety collection may contain both living material and descriptive information. A variety will be included in a reference collection only if plant material is available to make a technical examination.

Pursuant to Article 7 of Council Regulation (EC) No. 2100/94, the basis for a collection should be the following:

- varieties listed or protected at the EU level or at least in one of the EEA Member States;
- varieties protected in other UPOV Member States;
- any other variety in common knowledge.

It is the responsibility of Examination Office to keep the variety collection up to date.

2. Material to be examined

Candidate varieties will be directly compared with other candidates for Community plant variety rights tested at the same Examination Office, and with appropriate varieties in the variety collection. When necessary an Examination Office may also include other candidates and varieties.

3. Characteristics to be used

The characteristics to be used in DUS tests and preparation of descriptions shall be those referred to in Annex 1. 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. In the latter case, the CPVO should be informed. In addition the existence of some other regulation e.g. plant health, may make the observation of the characteristic impossible.

The Administrative Council empowers the President, in accordance with Article 23 of Commission Regulation (EC) No. 1239/95, to insert additional characteristics and their expressions in respect of a variety.

4. Grouping of varieties

The varieties and candidates to be compared will be divided into groups to facilitate the assessment of distinctness. Characteristics which are suitable for grouping purposes are those which are known from experience not to vary, or to vary only slightly, within a variety and which in their various states of expression are fairly evenly distributed throughout the collection. In the case of continuous grouping characteristics overlapping states of expression between adjacent groups is required to reduce the risks of incorrect allocation of candidates to groups. The characters used for grouping are the following:

- a) Spathe: size (characteristic 17)
- b) Spathe: main colour of upper side (characteristic 24)

5. Trial designs and growing conditions

The minimum duration of tests will normally be one growing cycle if the results on distinctness and uniformity are conclusive, except for varieties where the plant is used for the production of cut flowers (see question 7.2 of the technical questionnaire) which are tested at least for two growing cycles. Tests will be carried out under conditions ensuring normal growth. The size of the plots will be such that plants or parts of plants may be removed for measuring and counting without prejudice to the observations which must be made up to the end of the growing period.

The test design is as follows:

As a minimum, each test should include a total of 5 plants for pot plant varieties and 5 plants for cut flower varieties. Separate plots for observation and for measuring can only be used if they have been subject to similar environmental conditions.

All observations determined by measurement or counting should be made on 5 plants or parts taken from each of 5 plants and any other observations on all plants in the test.

All observations should be made on plants that have flowers of maximum size.

Unless otherwise indicated, all observations on the flower should be made shortly before dehiscence of anthers after the spadix has become sticky.

The test should normally be conducted at one place.

The test should be carried out in the greenhouse under conditions ensuring normal growth:

6. Special tests

In accordance with Article 83(3) of Council Regulation (EC) No. 2100/94 an applicant may claim either in the Technical Questionnaire or during the examination that a candidate variety 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.

7. Standards for decisions

a) **Distinctness**

A candidate variety will be considered to be distinct if it meets the requirements of Article 7 of Council Regulation (EC) No. 2100/94.

b) **Uniformity**

For the assessment of uniformity a population standard of 1% with an acceptance probability of at least 95% should be applied.

For a sample size between 1 and 5 plants for vegetatively propagated varieties, no off-type is allowed.

c) **Stability**

A candidate will be considered to be sufficiently stable when there is no evidence to indicate that it lacks uniformity.

IV - REPORTING OF RESULTS

After each growing cycle the results will be summarized and reported to the CPVO in the form of a UPOV model interim report in which any problems will be indicated under the headings distinctness, uniformity and stability. Candidates may meet the DUS standards after one growing cycle but in some cases two or more growing cycles may be required. When tests are completed the results will be sent by the Examination Office to the CPVO in the form of a UPOV model final report.

If it is considered that the candidate complies with the DUS standards, the final report will be accompanied by a variety description in the format recommended by UPOV. If not the reasons for failure and a summary of the test results will be included with the final report.

The CPVO must receive interim reports and final reports from the Examination Office by the date agreed between the CPVO and the Examination Office.

Interim reports and final examination reports shall be signed by the responsible member of the staff of the Examination Office and shall expressly acknowledge the exclusive rights of disposal of CPVO.

V - LIAISON WITH THE APPLICANT

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 agreement, the applicant may be directly informed at the same time as the CPVO particularly if a visit to the trial is advisable.

The interim report and final report shall be sent by the Examination Office to the CPVO.

ANNEXES TO FOLLOW

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Technical Questionnaire

ANNEX I

TABLE OF CHARACTERISTICS

CPVO N°	UPOV N°	Characteristics	Examples	Note	
1.	1. (*)	Plant: size	small	Hanna	3
			medium	Eva	5
			large	Gloria	7
2.	2.	Leaf blade: length	short	Champion	3
			medium	Eldorado	5
			long	Merengue	7
3.	3.	Leaf blade: width	narrow	Hanna	3
			medium	Eldorado	5
			broad	Merengue	7
4.	4. (*)	Leaf blade: shape	narrow ovate	Tessa	3
			ovate	Madonna	5
			broad ovate	Sancerre	7
5.	5. (*)	Leaf blade: lobes	absent	Champion	1
			present	Tropical	9

CPVO N°	UPOV N°	Characteristics	Examples	Note	
6.	6.	Leaf blade: relative position of lobes	incurved but not touching		1
			free	Lambada	2
			touching	Linda de Mol	3
			overlapping	Mia	4
			adpressed	Merenque	5
7.	7.	Leaf blade: angle of distal part	acute	Apollo	1
			approximately right angle	Lambada	2
			obtuse	Mia	3
8.	8. (*)	Leaf blade: shape of tip	narrow acute	Ellen	1
			acute	Champion	2
			broad acute	Mia	3
			narrow acuminate	Hanna	4
			acuminate	Linda de Mol	5
			broad acuminate	Rumba	6
9.	9.	Leaf blade: intensity of green colour of <u>upper</u> side	light		3
			medium	Mia	5
			dark	Rumba	7

CPVO N°	UPOV N°	Characteristics	Examples	Note	
10.	10.	Leaf blade: blistering of upper side	absent or very weak		1
			weak	Pink Georgusis	3
			medium	Samba	5
			strong	Patti Ann	7
			very strong		9
11.	11.	Petiole: length	short	Champion	3
			medium	Gloria	5
			long	Rumba	7
12.	12. (*)	Peduncle: length	very short	Belinda	1
			short	Champion	3
			medium	Linda de Mol	5
			long	Gloria	7
			very long		9
13.	13.	Peduncle: thickness	thin	Patti Ann	3
			medium	Linda de Mol	5
			thick	Salsa	7
14.	14.	Peduncle: intensity of green colour of middle part	light	Champion	3
			medium	Linda de Mol	5
			dark	Avo-Gino	7

CPVO N°	UPOV N°	Characteristics	Examples	Note	
15.	15.	Peduncle: anthocyanin coloration	absent or very weak	Pink Georgusis	1
			weak	Kuipers	3
			medium	Purple Rain	5
			strong	Nathalie	7
			very strong	Rachella	9
16.	16. (*)	Spathe: position compared to leaves	far below		1
			slightly below	Lady Jane	2
			same level		3
			slightly above	Champion	4
			far above	Eldorado	5
17.	17. (*)	Spathe: size	very small	Anetta	1
			small	Ellen	3
			medium	Fla-Exotic	5
			large	Merengue	7
			very large		9
18.	18. (*)	Spathe: shape	elliptic	Ariane, Apollo	1
			broad elliptic	Hanna	2
			almost round		3
			ovate	Anetta	4
			broad ovate	Gloria	5

CPVO N°	UPOV N°	Characteristics	Examples	Note	
19.	19. (*)	Spathe: lobes	absent	Arcs, Lady Jane	1
			present	Gloria	9
20.	20. (*)	Spathe: relative position of lobes	incurved but not touching	Mia	1
			free	Apollo	2
			touching	Merengue	3
			overlapping		4
			adpressed	Gloria	5
21.	21.	<u>Varieties with adpressed lobes only:</u> Spathe: height of the adpressed part of lobes	low	Mia	3
			medium	Royal Orange	5
			high	Riobamba	7
22.	22.	Spathe: shape of distal part	acute	Linda de Mol	1
			obtuse		2
			rounded	Mia	3
23.	23. (*)	Spathe: shape of tip	narrow acute	Gloria	1
			acute	Anetta	2
			broad acute	Calypso	3
			narrow acuminate	Lambada	4
			acuminate	Mia	5
			broad acuminate	Merengue	6

CPVO N°	UPOV N°	Characteristics	Examples	Note	
24.	24. (*)	Spathe: main colour of <u>upper side</u>	RHS Colour Chart (indicate reference number)		
25.	25.	Spathe: main colour of <u>lower side</u>	RHS Colour Chart (indicate reference number)		
26.	26.	Spathe: glossiness			
			very weak	White Bird	1
			weak	Anetta	3
			medium	Gloria, Mia	5
			strong	Royal Orange	7
			very strong	Cancan	9
27.	27. (*)	Spathe: blistering			
			very weak	Rebecca	1
			weak	Champion	3
			medium	Linda de Mol	5
			strong	Mia	7
			very strong		9
28.	28.	Spathe: shape in cross section of middle zone			
			concave	Champion	1
			straight	Gloria	2
			convex	Ellen	3
29.	29.	Spathe: angle of distal part to the peduncle			
			acute	Hanna	1
			approximately right angle	Mia	2
			obtuse	Gloria	3

CPVO N°	UPOV N°	Characteristics	Examples	Note	
30.	30. (+)	Spathe: distance between spadix and sinus	very short	Gloria	1
			short	Salsa	3
			medium	Rebecca	5
			long	Isabella	7
			very long	Rapsodie	9
31.	31. (*)	Spadix: length	very short	Anetta	1
			short	Purple Rain	3
			medium	Champion	5
			long	Gloria	7
			very long		9
32.	32.	Spadix: width at the middle	very narrow	Belinda	1
			narrow	Pink Georgusis	3
			medium	Mia	5
			broad	Gloria	7
			very broad	Antolfa	9
33.	33.	Spadix: rolling	absent		1
			present	Ellen, Hanna	9

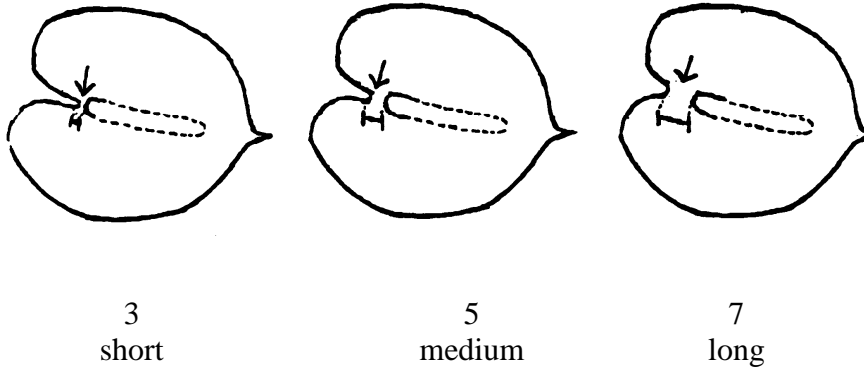
CPVO N°	UPOV N°	Characteristics	Examples	Note	
34.	34. (*)	Spadix: curvature of longitudinal axis	strongly incurved	1	
			weakly incurved	3	
			straight	Mia	5
			weakly recurved	Gloria	7
			strongly recurved	Merengue	9
35.	35.	Spadix: tapering towards the top	very weak	Antco	1
			weak	Linda de Mol	3
			medium	Mia, Gloria	5
			strong	Madonna	7
			very strong		9
36.	36. (*)	Spadix: main colour of basal part shortly before dehiscence of anthers	white to cream	Gloria	1
			yellow	Arinos	2
			orange	Hanna	3
			pink	Merengue	4
			red	Lipstick	5
			red purple	Patti Ann	6
			purple	Purple Rain	7

CPVO N°	UPOV N°	Characteristics	Examples	Note	
37.	37. (*)	Spadix: main colour of distal part shortly before dehiscence of anthers	white		1
			yellow	Arinos	2
			orange	Gloria	3
			red	Lipstick	4
			red purple	Southern Blush	5
			purple	Purple Rain	6
			green	Calypso	7
			brown	Antco	8
38.	38.	Spadix: main colour of <u>basal part shortly after</u> dehiscence of anthers	white to cream	Atlanta	1
			yellow	Apollo	2
			orange	Niky	3
			pink	Antamo	4
			red		5
			red purple	Rodeo	6
			purple	Anetta	7

CPVO N°	UPOV N°	Characteristics	Examples	Note
39.	39.	Spadix: main colour of <u>distal part shortly after</u> dehiscence of anthers		
		white		1
		yellow	Apollo	2
		orange	Niky	3
		red		4
		red purple	Rodeo	5
		purple	Anetta	6
		green		7
		brown		8

EXPLANATIONS ON THE TABLE OF CHARACTERISTICS

Ad 30 Spatha: distance between spadix and sinus



LITERATURE

UFFELEN, A. VAN, 1991: "Creatief bloemschikken met Anthurium, het complete Anthuriumboek," Zomer & Keunig Boeken B.V., Ede, NL

ANNEX II

The Technical Questionnaire is available on the CPVO website under the following reference:
CPVO-TQ/086/1