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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA



Angelonia angustifolia Benth. and its hybrids

UPOV Code: ANGLN_ANG and linked hybrid codes

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from Australia

to be considered by the Technical Working Party for Ornamental Plants and Forest Trees at its 38th session, to be held in Seoul, Republic of Korea from 12 to 16 September 2005

Alternative Names:*

Botanical name	English	French	German	Spanish
Angelonia				
angustifolia Benth.				

The purpose of these guidelines ("Test Guidelines") is to elaborate the principles contained in the General Introduction (document TG/1/3), and its associated TGP documents, into detailed practical guidance for the harmonized examination of distinctness, uniformity and stability (DUS) and, in particular, to identify appropriate characteristics for the examination of DUS and production of harmonized variety descriptions.

ASSOCIATED DOCUMENTS

These Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

^{*} These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website (www.upov.int), for the latest information.]

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1. <u>Subject of these Test Guidelines</u>

These Test Guidelines apply to all varieties of *Angelonia angustifolia* Benth. and their hybrids of the family *Scrophulariaceae*.

2. <u>Material Required</u>

- 2.1 The competent authorities decide on the quantity and quality of the plant material required for testing the variety and when and where it is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must ensure that all customs formalities and phytosanitary requirements are complied with.
- 2.2 The material is to be supplied in the form of rooted cuttings.
- 2.3 The minimum quantity of plant material, to be supplied by the applicant, should be:

20 rooted cuttings

- 2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.
- 2.5 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

3. Method of Examination

3.1 Number of Growing Cycles

The minimum duration of tests should normally be a single growing cycle.

3.2 Testing Place

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 "Examining Distinctness".

3.3 Conditions for Conducting the Examination

3.3.1 The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.

3.3.3 Type of observation

The recommended method of observing the characteristic is indicated by the following key in the second column of the Table of Characteristics:

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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

3.3.4 Observation of color by eye

Because daylight varies, color determinations made against a color chart should be made either in a suitable cabinet providing artificial daylight or in the middle of the day in a room without direct sunlight. The spectral distribution of the illuminant for artificial daylight should conform with the CIE Standard of Preferred Daylight D 6500 and should fall within the tolerances set out in the British Standard 950, Part I. These determinations should be made with the plant part placed against a white background.

3.4 Test Design

- 3.4.1 Each test should be designed to result in a total of at least 16 plants.
- 3.4.2 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle.

3.5 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, all observations on single plants should be made on 10 plants or parts taken from each of 10 plants and any other observations made on all plants in the test.

3.6 Additional Tests

Additional tests, for examining relevant characteristics, may be established.

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in these Test Guidelines.

4.1.2 Consistent Differences

The differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is

sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

4.1.3 Clear Differences

Determining whether a difference between two varieties is clear depends on many factors, and should consider, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo-qualitative manner. Therefore, it is important that users of these Test Guidelines are familiar with the recommendations contained in the General Introduction prior to making decisions regarding distinctness.

4.2 Uniformity

- 4.2.1 It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in these Test Guidelines.
- 4.2.2 For the assessment of uniformity a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 16 plants, 1 off-type is allowed.

4.3 Stability

- 4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.
- 4.3.2 Where appropriate, or in cases of doubt, stability may be tested, either by growing a further generation, or by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the previous material supplied.

5. Grouping of Varieties and Organization of the Growing Trial

- 5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics.
- 5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

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- 5.3 The following have been agreed as useful grouping characteristics:
 - (a) Corolla: presence of stripes on lobes (characteristic 14)
 - (b) Corolla: color (characteristic15) with the following groups:

Gr. 1: white Gr. 2: pink Gr. 3: purple

- 5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction.
- 6. <u>Introduction to the Table of Characteristics</u>
- 6.1 Categories of Characteristics
 - 6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

6.2 States of Expression and Corresponding Notes

States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.3 Types of Expression

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo-qualitative) is provided in the General Introduction.

6.4 Example Varieties

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

- 6.5 Legend
- (*) Asterisked characteristic see Chapter 6.1.2
- QL: Qualitative characteristic see Chapter 6.3

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QN: Quantitative characteristic – see Chapter 6.3

PQ: Pseudo-qualitative characteristic – see Chapter 6.3

MS: measurement of a number of individual plants or parts of plants – see Chapter 3.3.3

VG: visual assessment by a single observation of a group of plants or parts of plants – Chapter 3.3.3

VS: visual assessment by observation of individual plants or parts of plants – see Chapter 3.3.3

- (a)-(c) See Explanations on the Table of Characteristics in Chapter 8.1
- (+) See Explanations on the Table of Characteristics in Chapter 8.2

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7. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. (*)	VS	Plant: growth habit					
QN	(a)	upright					1
		semi-upright					2
		spreading					3
2.	VS	Plant: branching					
QN	(a)	weak					3
		medium					5
		strong					7
3. (*)	MS	Shoot: length					
QN	(a)	short					3
		medium					5
		long					7
4.	VS	Shoot: anthocyanin coloration on <u>lower</u> third					
QN	(a)	absent or very weak					1
		weak					3
		medium					5
		strong					7
5.	VS	Shoot: anthocyanin coloration on <u>upper</u> third					
QN	(a)	absent or very weak					1
		weak					3
		medium					5
		strong					7

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		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6. (*)	MS	Leaf: length					
QN	(b)	short					3
		medium					5
		long					7
7. (*)	MS	Leaf: width					
QN	(b)	narrow					3
		medium					5
		broad					7
8.	MS	Leaf: ratio length/width					
QN	(b)	small					3
		medium					5
		large					7
9.	VG	Leaf: intensity of green color on upper side	r				
QN	(b)	light					3
		medium					5
		dark					7
10.	VG	Leaf: glossiness on upper side					
QN	(b)	absent or very weak					1
		weak					3
		medium					5
		strong					7

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		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note Nota
11. (*) (+)	MS	Flower: length					
QN	(c)	short					3
		medium					5
		long					7
12. (*) (+)	MS	Flower: width					
QN	(c)	narrow					3
		medium					5
		broad					7
13. (+)	MS	Flower: ratio length/width					
QN	(c)	small					3
		medium					5
		large					7
14. (*)	VG	Corolla: presence of stripes on lobes	•				
QL	(c)	absent					1
		present					9
15. (*)	VG	Corolla: color					
PQ	(c)	RHS Colour Chart (indicate reference number)					
16. (*)	VG	Varieties with stripes on lobes present: Corolla: color of stripes on lobes					
PQ	(c)	RHS Colour Chart (indicate reference number)					

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		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
17. (*)	VG	Varieties with stripes on lobes absent: Corolla: color pattern on lobes					
QN	(c)	fading towards margins					1
		even					2
		fading towards base					3
18. (*)	VG	Varieties with stripes on lobes present: Corolla: width of stripes on lobes of lower lip					
QN	(c)	narrow					3
		medium					5
		broad					7
19. (*) (+)	MS	Lower lip: length of lobes in relation to width of lobes					
QN	(c)	longer than broad					1
		as long as broad					2
		broader than long					3
20. (*) (+)	VG	Lower lip: undulation of margins					
QN	(c)	absent or very weak					1
		weak					3
		medium					5
		strong					7

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		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
21. (*) (+)	VG	Pouch: color					
PQ	(c)	yellow green					1
		white					2
		pink					3
		purple					4
22. (*) (+)	VG	Pouch: green coloration					
QN	(c)	absent or very weak					1
		weak					3
		medium					5
		strong					7
23. (*) (+)	VG	Pouch: number of spots					
QN	(c)	absent or very few					1
		few					3
		medium					5
		many					7
24. (*) (+)	VG	Nectary bulge: color	r				
PQ	(c)	yellow					1
		green white					2
		white					3
		pink					4
		purple					5

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		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
25. (*) (+)	MS	Throat: length					
QN	(c)	short					3
		medium					5
		long					7
26. (*) (+)	MS	Throat: width					
QN	(c)	narrow					3
		medium					5
		broad					7
27. (+)	MS	Throat: ratio length/width					
QN	(c)	small					3
		medium					5
		large					7
28. (*) (+)	VG	Throat: color of chamber					
PQ	(c)	white					1
		pink					2
		purple					3
29. (*) (+)	VG	Throat: markings in chamber	1				
QN	(c)	absent or very weak					1
		weak					3
		medium					5
		strong					7

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		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
30. (+)	VG	Throat: density of markings in chamber					
QN	(c)	sparse					1
		medium					2
		dense					3
31. (*) (+)	VG	Throat: color of markings in chamber					
PQ	(c)	green					1
		pink					2
		purple					3

8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

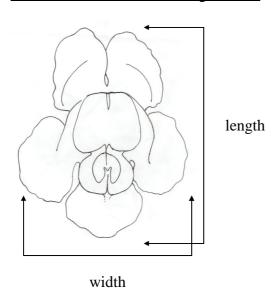
Characteristics containing the following key in the second column of the Table of Characteristics should be examined as indicated below:

- (a) Observations on the plant and shoot should be made on fully flowering plants that are 4 to 6 months old.
- (b) Observations on the leaf should be made on leaves taken from the middle part of the shoot.
- (c) Observations on the flower and flower parts should be made just prior to anthesis.

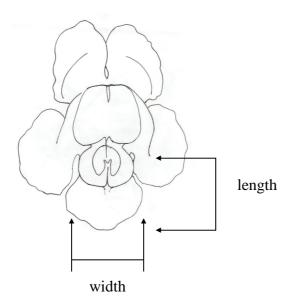
8.2 Explanations for individual characteristics

Ad. 11 Flower: length Ad. 12 Flower: width

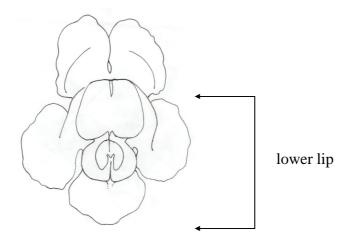
Ad. 13 Flower: ratio length/width



Ad. 19 Lower lip: length of lobes in relation to width of lobes



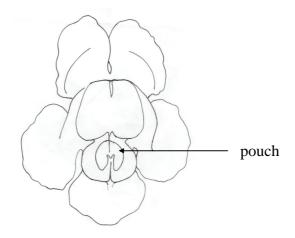
Ad. 20 Lower lip: undulation of margins



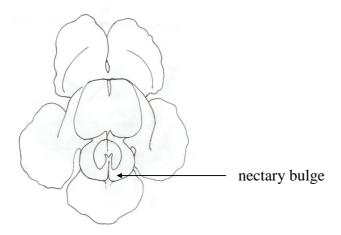
Ad. 21 Pouch: color

Ad. 22 Pouch: green coloration

Ad. 23 Pouch: number of spots

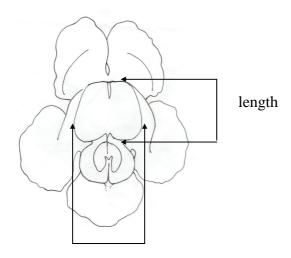


Ad. 24 Nectary bulge: color



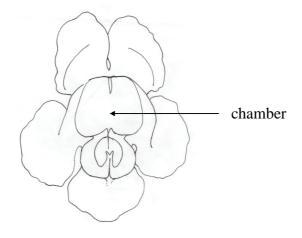
Ad. 25 Throat: length Ad. 26 Throat: width

Ad. 27 Throat: ratio length/width



width

Ad. 28	Throat: main color of chamber
Ad. 29	Throat: markings in chamber
Ad. 30	Throat: density of markings in chamber
Ad. 31	Throat: color of markings in chamber



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9. <u>Literature</u>

Liberty Hyde Bailey Hortorium, 1976: Hortus Third, Macmillan Publishing Company

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10. <u>Technical Questionnaire</u>

TECHNICAL QUESTIONNAIRI	Page $\{x\}$ of $\{y\}$	Reference Number:				
		Application date: (not to be filled in by the applicant)				
TECHNICAL QUESTIONNAIRE to be completed in connection with an application for plant breeders' rights						
1. Subject of the Technical Qu	estionnaire					
1.1 Botanical name	Angelonia angustifolia	Benth. []				
Hybrid: please indicate the	name(s) of species used	in the crossing				
1.2.1 Botanical name(s)		[]				
1.2.2 Common name						
2. Applicant						
Name						
Address						
Telephone No.						
Fax No.						
E-mail address						
Breeder (if different from ap	plicant)					
Ĺ						

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TECHNICAL QUESTIONNAIRE Page {x} of {y} Reference Number:							
3. Proposed denomination and breeder's reference							
Proposed denomination (if available)							
Breeder's reference							
[#] 4. Information on the breeding	g scheme and propagation of	of the variety					
4.1 Breeding scheme							
Variety resulting from	n:						
4.1.1 Crossing							
× /	ed cross state parent varieties)	[]					
	/ known cross state known parent variety([]					
(c) unknow	n cross	[]					
4.1.2 Mutation (please state p	parent variety)	[]					
	d development where and when discovered loped)	[]					
4.1.4 Other (please provide	le details)	[]					

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

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TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:			
4.2 Method of propagating the variety					
4.2.1 Vegetative propagation					
(a) cuttings		[]			
(b) in vitro propag	gation	[]			
(c) other (state me	ethod)	[]			
4.2.2 Seed		[]			
4.2.3 Other (please provide de	40:10)	[]			
5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).					
Characteristics		Example Varieties Note			

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TECHNICAL QUESTION	NNAIRE	Page {x} o	of {y}	Reference Nu	mber:
6. Similar varieties and differences from these varieties					
Please use the following table and box for comments to provide information on how your candidate variety differs from the variety (or varieties) which, to the best of your knowledge, is (or are) most similar. This information may help the examination authority to conduct its examination of distinctness in a more efficient way.					
• • •	Characteri which your ariety diffe	candidate	of the cha	the expression aracteristic(s) the similar	Describe the expression of the characteristic(s) for
Example	similar var			tety(ies) rple	your candidate variety white
			1	1	
Comments:					

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TECI	TECHNICAL QUESTIONNAIRE		Page {x} of {y}		of {y}	Reference Number:		
[#] 7.	Additional information which may help in the examination of the variety							
7.1	In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?							
	Yes	[]		No	[]	
	(If ye	s, plea	ise pr	ovide details)				
7.2	Are there any special conditions for growing the variety or conducting the examination?							
	Yes	[]		No	[]	
	(If yes, please provide details)							
7.3	Other information							
A representative color photograph of the variety should accompany the Technical Questionnaire.								
8.	Auth	orizati	on fo	or release				
	(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?							
		Yes	[]	No		[]	
	(b) Has such authorization been obtained?							
		Yes	[]	No		[]	
	If the answer to (b) is yes, please attach a copy of the authorization.							

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

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TECHNICAL QUESTIONNAL	RE Page {x} of {y}	Reference Number:					
9. Information on plant mate	. Information on plant material to be examined or submitted for examination.						
9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.							
9.2 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:							
(a) Microorganisms (e.	g. virus, bacteria, phytoplasn	na) Yes [] No []					
(b) Chemical treatment	b) Chemical treatment (e.g. growth retardant, pesticide)						
(c) Tissue culture	(c) Tissue culture						
(d) Other factors	(d) Other factors						
Please provide details for where you have indicated "yes".							
10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:							
Applicant's name							
Signature Date							

[End of document]