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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

EUCALYPTUS L'Hér. *

UPOV Code: EUCAL

Sub-genus *Symphyomyrtus*
Sections *Transversaria*, *Maidenaria*, *Exsertaria*

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an experts from Brazil and China

to be considered by the

Technical Working Party for Ornamental Plants and Forest Trees
at its forty-fifth session, to be held in Jeju, Republic of Korea from August 6 to 10, 2012

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Eucalyptus L'Hér. (Sub-genus *Symphyomyrtus*) (Sections *Transversaria*, *Maidenaria*, *Exsertaria*)	Eucalyptus	Eucalyptus	Eukalyptus	Eucalipto

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. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of the species of the sections *Transversaria*, *Maidenaria* and *Exsertaria* of the sub-genus *Symphyomyrtus* of the genus *Eucalyptus* L'Hér.

2. Material Required

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 young plants, 4 to 6 months old.

2.3 The minimum quantity of plant material, to be supplied by the applicant, should be:

7 plants.

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

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

3.1.2 The growing cycle is considered to be the period ranging from the beginning of active vegetative growth, continuing through active vegetative growth and concluding with fruiting. The growing cycle would be at least 68 months.

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.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 7 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 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.

4.1.4 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, all observations for the purposes of distinctness should be made on 5 plants or parts taken from each of 5 plants and other observations made on all plants in the test, disregarding any off-type plants.

4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the second column of the Table of Characteristics (see document TGP/9 “Examining Distinctness”, Section 4 “Observation of characteristics”):

MG: single measurement of a group of plants or parts of plants
MS: measurement of a number of individual plants or parts of plants
VG: visual assessment by a single observation of a group of plants or parts of plants
VS: visual assessment by observation of individual plants or parts of plants

Type of observation: visual (V) or measurement (M)

“Visual” observation (V) is an observation made on the basis of the expert’s judgment. For the purposes of this document, “visual” observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. color charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

Type of record: for a group of plants (G) or for single, individual plants (S)

For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual plants or parts of plants (S). In most cases, “G” provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness.

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 7 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 further examined by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the initial 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.

5.3 The following have been agreed as useful grouping characteristics:

(a) Leaf: petiole (characteristic 1)
(b) Leaf: waxiness of upper side (characteristic 10)
(c) Primary branch: type of insertion in main stem (characteristic 22)
(d) Flower arrangement (characteristic 42)
(e) Umbel: number of buds (char. 43)
(f) Fruit: shape (char. 50)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 “Examining Distinctness”.

6. Introduction to the Table of Characteristics

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

6.2.1 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.

6.2.2 In the case of qualitative and pseudo-qualitative characteristics (see Chapter 6.3), all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

State	Note
small	3
medium	5
large	7

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

State	Note
very small	1
very small to small	2
small	3
small to medium	4
medium	5
medium to large	6
large	7
large to very large	8
very large	9

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

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
QN: Quantitative characteristic – see Chapter 6.3
PQ: Pseudo-qualitative characteristic – see Chapter 6.3

MG, MS, VG, VS – see Chapter 4.1.5

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

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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. **(*)** **(+)**	**VG**	**Leaf: petiole**					
QL	**(a)**	absent					1
		present					9
2. **(*)** **(+)**	**VG**	**Only varieties without petiole: Leaf: attachment**					
PQ	**(a)**	connate					1
		amplexicaul					2
		decurrent					3
3. **(*)** **(+)**	**VG/ MS**	**Leaf blade: length**					
QN	**(a)**	short					3
		medium					5
		long					7
4. **(*)** **(+)**	**VG/ MS**	**Leaf blade: width**					
QN	**(a)**	narrow					3
		medium					5
		broad					7
5. **(*)**	**VG/ MS**	**Leaf blade: ratio**					
PQ	**(a)**	slightly elongated					3
		moderately elongated					5
		very elongated					7
6.	**VG**	**Leaf blade: position of broadest part**					
QN	**(a)**	towards base					1
		at middle					2
		towards top					3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
7. **(*)** **(+)**	**VG**	**Leaf blade: shape of base**					
PQ	**(a)**	sagittate					1
		hastate					2
		auriculate					3
		cordate					4
		obtuse					5
		cuneate					6
		attenuate					7
		oblique					8
8. **(*)** **(+)**	**VG**	**Leaf blade: shape of apex excluding tip**					
PQ	**(a)**	acute					1
		obtuse					2
		rounded					3
		obcordate					4
		apiculate					5
		subulate					6
		acuminate					7
		emarginate					8
9. **(*)** **(+)**	**VG**	**Leaf blade: differentiate tip**					
PQ	**(a)**	none					1
		apiculate					2
		acuminate					3
		cirrhous					4
		mucronate					5
		aristate					6

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
10. (*)	**VG**	**Leaf: waxiness of upper side**					
QN	**(a)**	absent or weak				IPB3, IPB4, SUZSP0619	1
		medium				VM08	2
		strong				VT06	3
11.	**VG**	**Leaf: anthocyanin coloration**					
QN	**(a)**	absent or very weak				SEAGR46, SEAGR47, SUZBA9318	1
		weak				AEC 1528	3
		medium				IPB2, VT01	5
		strong					7
		very strong					9
12. (*) (+)	**VG**	**Leaf: petiole**					
QL	**(b)**	absent					1
		present					9
13. (+)	**VG**	**Leaf: attitude**					
PQ	**(b)**	upwards					1
		horizontal					2
		downwards					3
14. (*) (+)	**VG/ MS**	**Leaf blade: length**					
QN	**(b)**	short					3
		medium					5
		long					7
15. (*) (+)	**VG/ MS**	**Leaf blade: width**					
QN	**(b)**	narrow					3
		medium					5
		broad					7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
16. (*) (+)	**VG/ MS**	**Leaf blade: ratio**					
QN	**(b)**	short					3
		medium					5
		long					7
17.	**VG**	**Leaf blade: position of broadest part**					
QN	**(b)**	towards base					1
		at middle					2
		towards top					3
18. (*) (+)	**VG**	**Leaf blade: shape of base**					
PQ	**(b)**	sagittate					1
		hastate					2
		auriculate					3
		cordate					4
		obtuse					5
		cuneate					6
		attenuate					7
		oblique					8
19. (*) (+)	**VG**	**Leaf blade: shape of apex**					
PQ	**(b)**	acute					1
		obtuse					2
		rounded					3
		obcordate					4
		apiculate					5
		subulate					6
		acuminate					7
		emarginate					8

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
20. **(*)** **(+)**	**VG**	**Leaf blade: tip**					
QL	**(b)**	none					1
		apiculate					2
		acuminate					3
		cirrhous					4
		mucronate					5
		aristate					6
21. **(*)**	**VG**	**Leaf: waxiness of upper side**					
QN	**(b)**	absent or weak				IPB5, SEAGR47, SUZSP0628, SUZBA9318	1
		medium				ARA6011, ARA6061, ARA11097	2
		strong				ARA1967, VT01	3
22. **(*)** **(+)**	**VG**	**Primary branch: type of insertion in main stem**					
QL	**(b)**	inverted “V”					1
		spherical					2
23. **(+)**	**VG**	**Branch: attitude**					
QN	**(a)**	upward					1
		semi-upward					2
		horizontal					3
24. **(*)** **(+)**	**VG**	**Trunk: rhytidome**					
QL	**(c)**	absent					1
		present					9
25.	**VG**	**Trunk: main color of rhytidome**					
PQ	**(d)**	green					1
		grey				ARA11097	2

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
26. **(*)** **(+)**	**VG**	**Trunk: main color excluding rhytidome**					
PQ	**(d)**	brownish white					1
		green				VM 11	2
		bluish green				ARA 6075, IPB4	3
		grey				SUZMA 2001, VM08	4
		brown				IPB7, VT01, VT02,	5
27.	**VG**	**Trunk: waxiness (excluding rhytidome)**					
QN	**(b)**	absent or weak					1
		medium					2
		strong					3
28. **(*)** **(+)**	**VG**	**Leaf: petiole**					
QL	**(c)**	absent					1
		present					9
29. **(+)**	**VG**	**Leaf: attitude**					
PQ	**(c)**	upwards					1
		horizontal					2
		downwards					3
30. **(*)** **(+)**	**VG/** **MS**	**Leaf blade: length**					
QN	**(c)**	short					3
		medium				*ARA 6075, SUZSP0530, VT 02*	5
		long				*IPB1, IPB5, VT03*	7
31. **(*)** **(+)**	**VG/** **MS**	**Leaf blade: width**					
QN	**(c)**	narrow					3
		medium				*IPB2, VT01, VT04*	5
		broad				*SUZSP1002, SUZSP0619*	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
32. (*)	**VG/ MS**	**Leaf blade: ratio**					
QN	**(c)**	short					3
		medium					5
		long					7
33.	**VG**	**Leaf blade: position of broadest part**					
QN	**(c)**	towards base					1
		at middle					2
		towards top					3
34. (*) (+)	**VG**	**Leaf blade: shape of base**					
PQ	**(c)**	sagittate					1
		hastate					2
		auriculate					3
		cordate					4
		obtuse					5
		cuneate					6
		attenuate					7
		oblique					8
35. (*) (+)	**VG**	**Leaf blade: shape of apex**					
PQ	**(c)**	acute					1
		obtuse					2
		rounded					3
		obcordate					4
		apiculate					5
		subulate					6
		acuminate					7
		emarginate					8

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
36. **(*)** **(+)**	**VG**	**Leaf blade: tip**					
QL	**(c)**	none					1
		apiculate					2
		acuminate					3
		cirrhous					4
		mucronate					5
		aristate					6
37.	**VG**	**Leaf: intensity of color of upper side in relation to lower side**					
QN	**(c)**	same or slightly darker					1
		moderately darker					2
		much darker					3
38. **(*)**	**VG**	**Leaf: waxiness of upper side**					
QN	**(c)**	absent or weak				IPB1, IPB2, IPB3	1
		medium				VT01, VT02, VT05	2
		strong					3
39. **(*)** **(+)**	**VG**	**Leaf: petiole**					
QL	**(d)**	absent					1
		present					9
40. **(*)** **(+)**	**VG**	**Primary branch: type of insertion in main stem**					
QL	**(d)**	inverted “V”					1
		spherical					9
41. **(*)**	**MG**	**Tree: time of first flowering**					
QN		early				IPB1, IPB2, IPB5, SEAGR46, SUZSP0530, VT01	1
		medium				ARA6011, ARA6061	2
		late				VT04	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
42. (*) (+)	**VG**	**Flower type**					
QL	**(d)**	solitary					1
		umbel					2
43. (*)	**MG**	**Only varieties with flower umbel arrangement: number of buds**					
QL	**(e)**	three					1
		seven					2
		nine					3
		eleven					4
		> eleven					5
44. (*)	**VG/ MS**	**Only varieties with umbel flower arrangement: Peduncle: length**					
QN		short					3
		medium				AEC 1528, ARA6061	5
		long				IPB5, SEAGR47, SUZBA9318	7
45. (*) (+)	**VG**	**Umbel: shape of peduncle in cross section**					
QL		rounded					1
		flattened					2
46. (*) (+)	**VG**	**Flower bud: shape of operculum**					
PQ		rostrate					1
		hemispherical					2
		hemispherical apiculate					3
		flattened with a prominent pointed tip					4
		horn-shaped					5
		elongated					6
		conical					7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
47. **(*)** **(+)**	**VG**	**Fruit: pedicel**					
QL		absent					1
		present					9
48. **(*)** **(+)**	**VG/** **MS**	**Fruit pedicel: length relative to calyx**					
QN		shorter					1
		similar					2
		longer					3
49. **(*)**	**VG/** **MS**	**Fruit: width**					
QN		narrow					3
		medium					5
		broad					7
50. **(*)** **(+)**	**VG**	**Fruit: shape**					
PQ		conical					1
		cylindrical					2
		ovoid					3
		urceolate					4
		globose					5
		pyriform					6
		campanulate					7
		hemispherical					8
51. **(*)** **(+)**	**VG**	**Fruit: texture of surface**					
QL		smooth					1
		rough					2
52. **(*)** **(+)**	**VG**	**Fruit: disc**					
QL		descending					1
		same level					2
		ascending					3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
53. **(*)** **(+)**	**VG**	**Fruit: position of valve**					
QN		sunken					1
		rim level					2
		exserted					3
54. **(+)**	**VG**	**Trunk: texture of basal rhytidome**					
PQ	**(d)**	rough/compact					1
		rough/fibrous					2
55. **(*)** **(+)**	**VG**	**Trunk: extension of rhytidome**					
QN		up to lower third					1
		up to mid-third					2
		up to upper third					3
56. **(+)**	**MS**	**Trunk: density of wood**					
QN	**(d)**	low					3
		medium					5
		high					7

8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

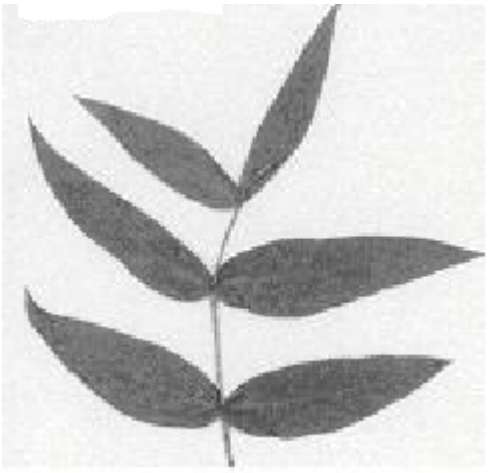
8.1.1 Characteristics containing the following key in the second column of the Table of Characteristics should be examined as indicated below:

(a) All observations should be made on 10 to 12 month old trees.
(b) All observations should be made on 20 to 22 month old trees.
(c) All observations should be made on 42 to 44 month old trees.
(d) All observations should be made on 64 to 66 month old trees.

Observations on the leaf should be made on leaves located on terminal shoots in active growth.

8.2 Explanations for individual characteristics

Ad. 1: Leaf: petiole

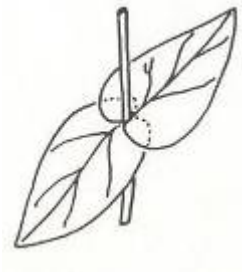


1
absent

9
present

Ad. 2: Only varieties without petiole: Leaf: attachment

1
connate



2
amplexicaul

3
decurrent

Ad. 3, 14, 30: Leaf blade: length

The length should be evaluated on the biggest leaf of a branch located in the beginning of the upper third of the crown.

Ad. 4, 15, 31: Leaf blade: width

3
narrow

5
medium

7
broad

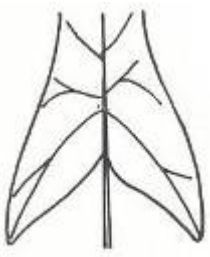
Ad. 5, 16, 32: Leaf blade: ratio

3
slightly elongated

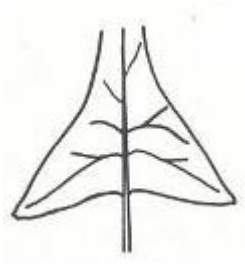
5
moderately elongated

7
very elongated

Ad. 7, 18, 34: Leaf blade: shape of base

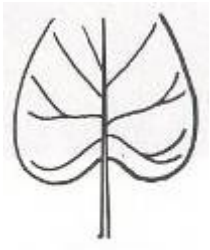


1
sagittate



2
hastate

3
auriculate

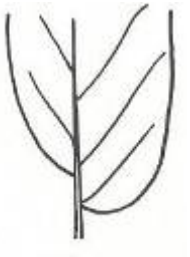


4
cordate

5
obtuse

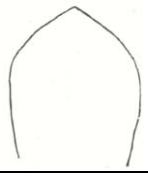
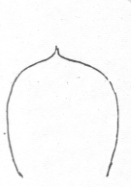
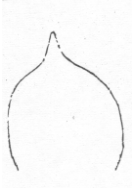
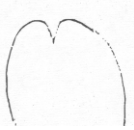
6
cuneate

7
attenuate

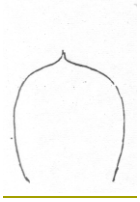
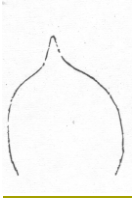
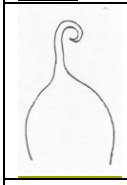
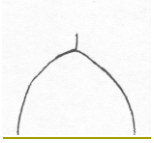
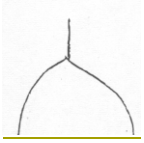


8
oblique

Ad. 8, 19, 35: Leaf blade: shape of apex

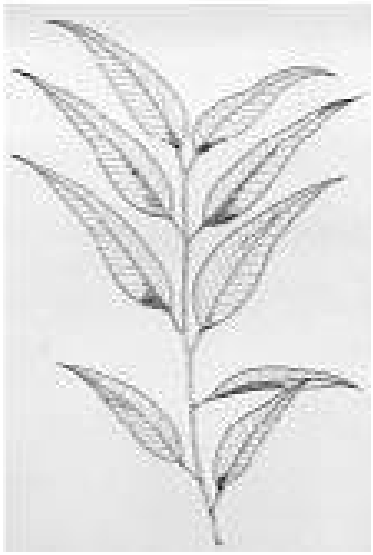
			
1	2	3	4
acute	obtuse	rounded	obcordate
			
5	6	7	8
apiculate	subulate	acuminate	emarginate

Ad. 9: Leaf blade: tip
Ad. 36: Leaf blade: tip

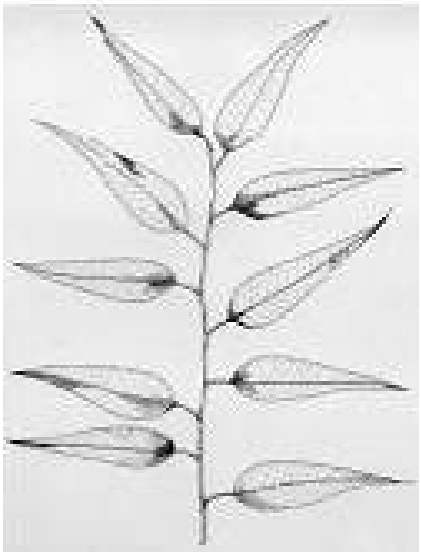
		
1	2	3
none	apiculate	acuminate
		
4	5	6
cirrhous	mucronate	aristate

Ad. 13, 29: Leaf blade: attitude

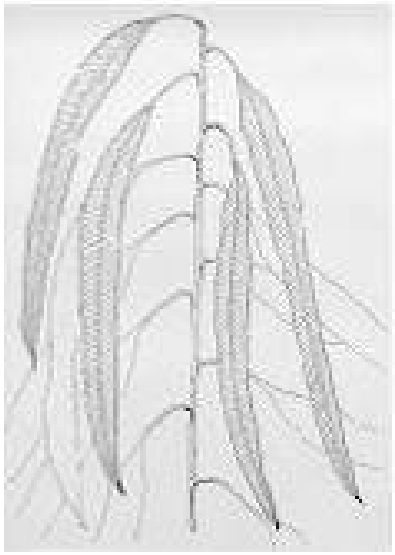
This characteristic should be observed with the branch positioned vertically.



1
upwards



2
horizontal



3
downwards

Ad. 23: Branch: attitude

1
upward

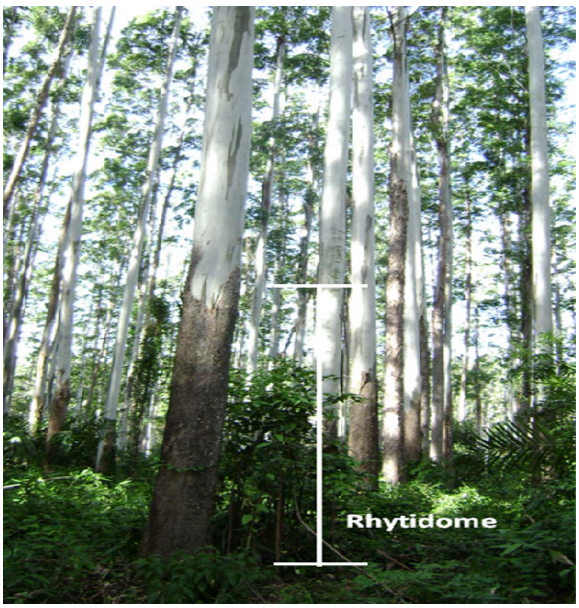
2
semi-upward

3
horizontal

Ad. 24: Trunk: rhytidome

For some varieties as a tree grows in diameter, the bark tissues are stretched and eventually crack. A new phellogen is then originated in the phloem, and the tissues outside this new layer die and dry out, thus forming part of the outer rough bark of the tree. This bark is known as the rhytidome.

1
absent



9
present

Ad. 31: Leaf blade: width

This evaluation should be performed on the same leaf selected for characteristic 28. The observation should be made in the widest part of the blade.

Ad 22, Ad. 40: Primary branch: type of insertion in main stem on lower third crow

1
inverted “V”

2
spherical

Ad. 42: Flowering type

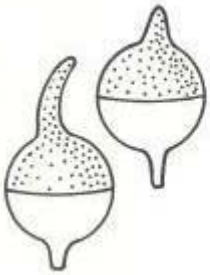
solitary

umbel

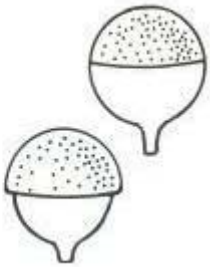
Ad. 45: Umbel: shape of peduncle in cross section

	
rounded	flattened

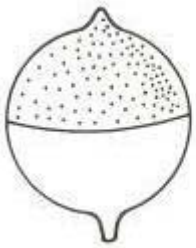
Ad. 46: Flower bud: shape of operculum



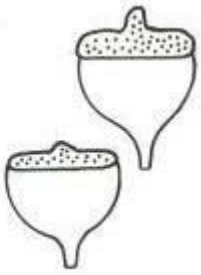
1
rostrate



2
hemispherical

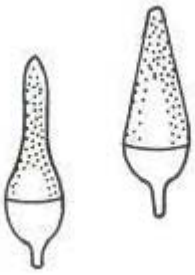


3
hemispherical apiculate

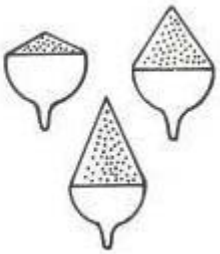


4
flattened with a prominent pointed tip

5
horn-shaped

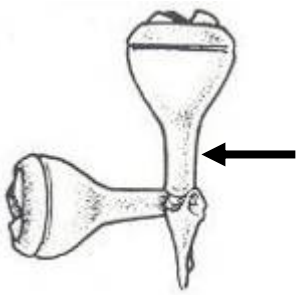


6
elongated

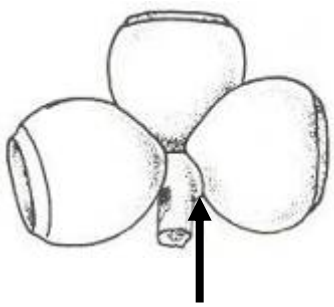


7
conical

Ad. 47: Fruit: pedicel

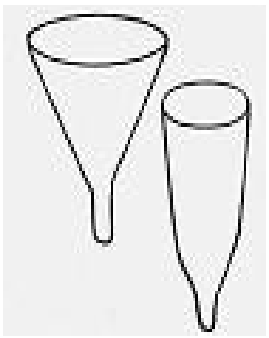


1
present

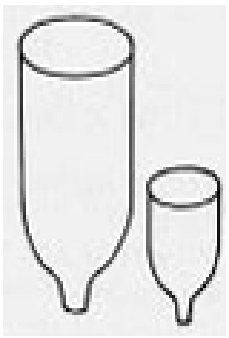


9
absent

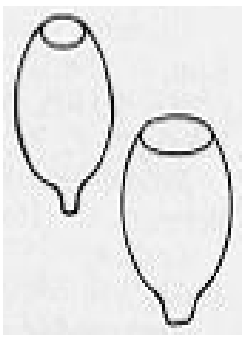
Ad. 50: Fruit: shape



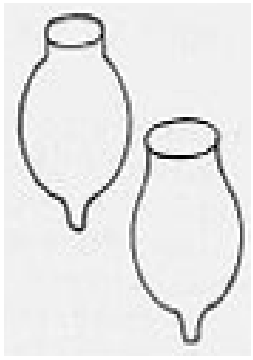
1
conical



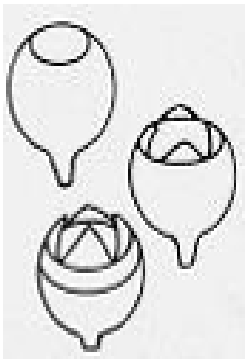
2
cylindrical



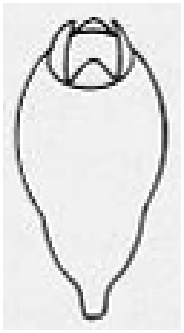
3
ovoid



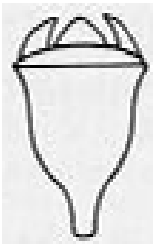
4
urceolate



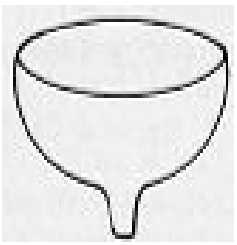
5
globose



6
pyriform



7
campanulate



8
hemispherical

Ad. 51: Fruit: texture of surface

The texture of the fruit should be observed during current year fruitage.

Ad. 52: Fruit: disc

1
descending

2
same level

3
ascending

Ad. 53: Fruit: valve position

1
sunken

2
rim level

3
exserted

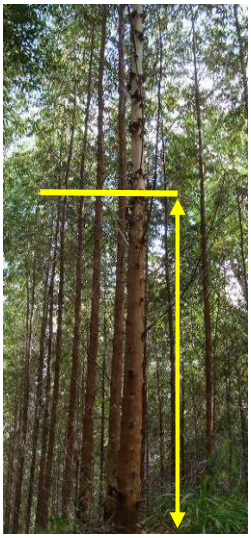
Ad. 54: Trunk: texture of basal rythidome

1
rough/compact

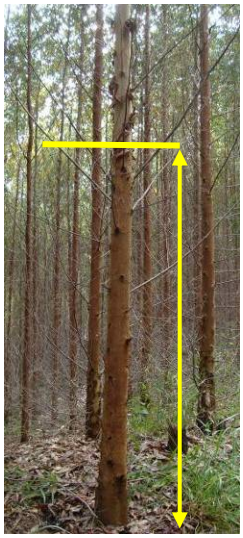
2
rough/fibrous

Ad. 55: Only varieties with rhytidome: Trunk: height of rhytidome

1
up to lower third



2
up to medium third



3
up to upper third

Ad. 56: Wood: density

The density must be evaluated based on the wood volume at the highest level of humidity, through the hydrostatic balance methodology, according to TAPPI Norm #T258 om-94 (Technical Association of Pulp and Paper Industry).

9. Literature

Boland, D. J.; Brooker, M. I. H.; Chippendale, G. M.; Hall, N.; Hyland, B. P. M.; Johnston, R. D., Kleinig, D. A. & Turner, J. D., 1994: Forest trees of Autralia. 4ª ed. Melbourne, AU, Nelson: CSIRO, 703 p.

Brooker, M.I.H. & Kleinig, D.A., 1999: Field guide to eucalypts: south – eastern Australia Vol. 1. 2ª ed. Bloomings Books. 353 p.

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Brooker, M.I.H. & Kleinig, D.A, 2004: Field guide to eucalypts: northern Australia Vol. 3. 2ª ed. Bloomings Books. 400 p.

Chippendale, G. M., 1968: Eucalyptus buds and fruits. Canberra: Forestry and Timber Bureau, AU, 96 p.

FAO, 1981: El eucalipto en la repoblación forestal. Roma, IT, 723 p.

Goes, E., 1985: Os Eucaliptos. Lisboa, PT, 372 p.

Penfold, A.R. & Willis, J.L., 1961: The Eucalypts. New York, US, 551p.

Drawings by: Anna Júlia Passold, Israel Gomes Vieira and Joel F. Penteado Jr.

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	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 Questionnaire

1.1 Genus	*Eucalyptus* L'Hér.
1.2 Sub-genus	*Symphyomyrtus*
1.3 Section	Transversaria – Exsertaria - Maidenaria
1.4 Species (please complete)	

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	
Breeder (if different from applicant)	

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 scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]
(please state parent varieties)

(……..……..) x (……..……..)
female parent male parent

(b) partially known cross [ ]
(please state known parent variety(ies))

(……..……..) x (……..……..)
female parent male parent

(c) unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

4.1.3 Discovery and development [ ]
(please state where and when discovered and how developed)

4.1.4 Other [ ]
(please provide details)"

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

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* propagation [ ]

(c) other (state method) [ ]

4.2.2 Other [ ]
(please provide details)”

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

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
5.1 (1)	**Leaf: petiole**		
	absent		1[ ]
	present		9[ ]
5.2 (10)	**Leaf: waxiness of upper side**		
	absent or weak	IPB3, IPB4, SUZSP0619	1[ ]
	medium	VM08	2[ ]
	strong	VT06	3[ ]
5.3 (22)	**Primary branch: type of insertion in main stem**		
	inverted “V”		1[ ]
	spherical		2[ ]
5.4 (42)	**Flower type**		
	solitary		1[ ]
	umbel		2[ ]
5.5 (43)	**Only varieties with flower umbel arrangement: number of buds**		
	three		1[ ]
	seven		2[ ]
	nine		3[ ]
	eleven		4[ ]
	> eleven		5[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

	Characteristics	Example Varieties	Note
5.6 (50)	**Fruit: shape**		
	conical		1[ ]
	cylindrical		2[ ]
	ovoid		3[ ]
	urceolate		4[ ]
	globose		5[ ]
	pyriform		6[ ]
	campanulate		7[ ]
	hemispherical		8[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

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.

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example	*[insert example]*	*[insert example]*	*[insert example]*
Example	*Trunk: main color excluding rhytidome*	*green*	*bluish green*

Comments:

TECHNICAL QUESTIONNAIRE	Page {x} 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 yes, please provide 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

8. Authorization for 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.

9. 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, phytoplasma) Yes [ ] No [ ]

(b) Chemical treatment (e.g. growth retardant, pesticide) Yes [ ] No [ ]

(c) Tissue culture Yes [ ] No [ ]

(d) Other factors Yes [ ] No [ ]

Please provide details for where you have indicated “yes”.

……

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

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

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]