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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

ACEROLA

UPOV Code: MALPI_EMA

Malpighia emarginata DC.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from Japan

to be considered by

the Technical Working Party for Fruit Crops
at its forty-first session, to be held in Cuernavaca, Morelos State, Mexico,
from September 27 to October, 2010

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Malpighia emarginata DC.	Acerola, Barbados cherry, West Indian-cherry	Cerise de Cayenne, Cerisier de Barbade, Cerisier des Antilles	Barbadoskirsche, Westindische Kirsche	Semeruco, Grosella

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 *Malpighia emarginata* DC..

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 budsticks, dormant shoots or one-year-old trees grafted on a rootstock selected by the testing authority.

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

- 5 budsticks with sufficient buds to propagate 5 trees (to be sent at budding time)

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 two independent growing cycles. In particular, it is essential that the trees produce a satisfactory crop of fruit in each of the two growing cycles.

3.1.2 The growing cycle is considered to be the duration of a single growing season, beginning with bud burst (flowering and/or vegetative), flowering and fruit harvest and concluding when the following dormant period ends with the swelling of new season buds.

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

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. Trees should only be pruned in the year of planting to ensure good branch formation.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 5 trees.

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, disregarding any off-type plants. In the case of observations of parts of plants, the number of parts to be taken from each of the plants should be 2.

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."

In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2.

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 5 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 blade: ratio length/width (characteristic 9)
(b) Petal: color (characteristic 18)
(c) Fruit: ratio height/diameter (characteristic 21)
(d) Fruit: weight (characteristic 22)
(e) Fruit: acidity (characteristic 34)

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.

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**	**Plant: growth habit**					
(+)							
PQ	**(a)**	upright				Maunawili	1
		spreading				Hawaiian Queen, Rubra	2
		weeping				Cabocla, Sertaneja	3
2.	**VG**	**Plant: vigor**					
(+)							
QN	**(a)**	weak					3
		medium				Tropical Ruby	5
		strong				Maunawili	7
3.	**VG**	**Plant: density of branches**					
(+)							
QN	**(a)**	sparse					3
		medium				Cabocla, Maunawili, Rubra,	5
		dense				Tropical ruby	7
4.	**MS**	**One-year-old shoot: length of internode**					
QN	**(a)**	short				Tropical ruby	3
		medium				Maunawili	5
		long					7
5.	**MS**	**One-year-old shoot: thickness ~~of branch~~**					
QN	**(a)**	thin				Hawaiian Queen	3
		medium				Maunawili	5
		thick				~~C.F.Rehnborg~~ Tropical ruby	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
6.	**VG**	**Young shoot: pubescence**					
QN	**(a)**	sparse				Maunawili	3
		medium				Hawaiian Queen	5
		dense					7
7.	**VG**	**Young shoot: color**					
PQ	**(a)**	grayish				example variety	1
		light brown				example variety	2
		medium brown				example variety	3
8.	**MS**	**Leaf blade: length**					
(+)							
QN	**(b)**	short					3
		medium				Tropical Ruby	5
		long				Maunawili	7
9. **(*)** **(+)**	**MS**	**Leaf blade: ratio length/width**	‘moderately elongated’ and ’ moderately compressed’ are replaced each other.(JP)				
QN	**(b)**	moderately elongated				Maunawili	3
		medium				Hawaiian Queen	5
		moderately compressed					7
10. **(+)**	**VG**	**Leaf blade: position of broadest part**					
QN	**(b)**	toward base	.				1
		at middle				Maunawili	2
		toward apex					3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
11. **(+)**	**VG**	**Leaf blade: undulation of margin**	BR prepare new photographs and example varieties (TWF40)		BR photos attached		
QN	**(b)**	weak				Okinawa	3
		medium				Cabocla, Sertaneja	5
		strong					7
12. **(+)**	**VG**	**Leaf blade: angle of apex**	BR prepare new photographs (TWF40)		BR photos still trying JP prepare photos		
QN	**(b)**	small				Maunawili	3
		medium				Hawaiian Queen	5
		large					7
13.	**VG**	**Leaf blade: intensity of green color on upper side**					
QN	**(b)**	light				Flor Branca	3
		medium				Cabocla	5
		dark				Maunawili, Rubra	7
14.	**MS**	**Inflorescence: number of flowers**	Number of flowers is basically 4. Is there a difference? (JP)				
QN	**(c)**	few				example variety	3
		medium				example variety	5
		many				example variety	7
15.	**VG**	**Flower: position of stigma in relation to anthers**					
QN	**(c)**	below					1
		same level				Cabocla, Rubra	2
		above					3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
16. (new) **(+)**	**VG**	**Flower: shape of style**	This chr. is useful to distinguish varieties. (JP)				
QN	**(c)**	straitght				Sanmi-kei	1
		slightly curved				Okinawa	2
		curved				NRA309	3
17. **(+)**	**VG**	**Petal: undulation of margin exclude the largest petal**					
QN	**(c)**	Weak					3
		medium					5
		strong				Hawaiian Queen	7
18. **(*)** **(+)**	**VG**	**Petal: color**	To be chosen photo alternative 1 or 2.				
PQ	**(c)**	white					1
		light pink				Manuawili	2
		medium pink				Hawaiian Queen	3
19. **(+)**	**MS**	**Fruit: height**					
QN	**(d)**	short				example variety	3
		medium				example variety	5
		tall				example variety	7
20. (new) **(+)**	**MS**	**Fruit: diameter**	If necessary, to be added instead of chr. No. 32 ‘thickness of flesh’.(JP)			To be checked example variety.(JP)	
QN	**(d)**	small				Sertaneja	3
		medium				Rubra	5
		large				Cabocla	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
21. (*) (+)	**MS**	**Fruit: ratio height/diameter**	BR provide better photographs (TWF40)	BR see photo fruit shape	Ratio can't express certain shape 'conical'. To be added 'Fruit: shape' after 'Fruit: weight' (JP)		
QN	**(d)**	moderately elongated				Maunawili	1
		medium					2
		moderately compressed					3
22. (*)	**MS**	**Fruit: weight**					
QN	**(d)**	low				Maunawili, Sertaneja	3
		medium				Hawaiian Queen, Rubra	5
		high				Cabocla, C.F.Rehnborg	7
23. (new) **(+)**	**VG**	**Fruit: shape**					
PQ	**(d)**	oblong					1
		round				Maunawili	2
		oblate				Hawaiian Queen	3
		conical				Tropical Ruby	4
24. (+)	**VG**	**Fruit: depth of grooves**	to be checked relation between chr.24 and chr.25 (TWF40)	No.24 and 25 are independently. To be kept. (JP)	BR see photo		
QN	**(d)**	shallow				Maunawili, Rubra	1
		medium					2
		deep					3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
25. **(+)**	**VG**	**Fruit: depth of basin**	to be checked relation between chr.24 and chr.25 (TWF40)	No.24 and 25 are independently. To be kept. (JP)	BR see photo		
QN	**(d)**	shallow				Maunawili	1
		medium				Tropical Ruby	2
		deep					3
26. **(+)**	**VG**	**Fruit: width of basin**	to be checked to delete or not (TWF40)	To be kept. (JP)			
QN	**(d)**	narrow				Maunawili	1
		medium				Tropical Ruby	2
		broad				Hawaiian Queen	3
27. **(+)**	**VG**	**Fruit: depth of stalk cavity**					
QN	**(d)**	shallow				Maunawili	1
		medium					2
		deep				Hawaiian Queen	3
28. **(*)** **(+)**	**VG**	**Fruit: width of stalk cavity**					
QN	**(d)**	narrow					3
		medium				Maunawili	5
		broad				Hawaiian Queen	7
29. **(*)**	**VG**	**Fruit: main color of skin**					
PQ	**(d)**	yellow					1
		light red					2
		medium red				Rubra, Cabocla	3
		dark red				Maunawili	4

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
30. **(+)**	**MS**	**Fruit: length of stalk**					
QN	**(d)**	short				Maunawili	3
		medium				Hawaiian Queen	5
		long				Red Jumbo	7
31. **(+)**	**MS**	**Fruit: thickness of skin**	BR provide explanation or Photograph (TWF40)	It is very hard to measure thickness of skin because skin is very thin. To be deleted. (JP)	BR to delete		
QN	**(d)**	thin				Sertaneja	3
		medium				Rubra	5
		thick				Cabocla	7
32. **(+)**	**MS**	**Fruit: thickness of flesh**	How to measure from where to skin? Is this chr. parallel to fruit diameter? If so and need to keep this chr., fruit diameter is better. To be deleted and if necessary, to be added “Fruit: diameter” after “Fruit: height”. (JP)				
QN	**(d)**	thin				Sertaneja	3
		mediun				Rubra	5
		thick				Cabocla	7
33.	**VG**	**Fruit: color of flesh**	BR provide example variety for note 4 (TWF40)	Orange should move to after “yellow” (JP)			
PQ	**(d)**	yellow				Red Jumbo	1
		orange				Cabocla	2
		pink				Maunawili	3
		red				C.F.Rehnborg	4
34. **(*)**	**MS**	**Fruit: acidity**					
QN	**(d)**	low				Rubra	3
		medium				Cabocla, Maunawili	5
		high				Sertaneja	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
35.	**VG**	**Fruit: juiciness ~~of flesh~~**					
QN	**(d)**	low				Florida Sweet, Red Jumbo	3
		medium				Maunawili	5
		high				Cabocla	7
36.	**MS**	**~~Seed~~ Stone: size**					
QN	**(d)**	small				Sertaneja	3
		medium				Cabocla, Okinawa	5
		large				Rubra	7
37.	**VG**	**~~Seed~~ Stone: color**					
QN	**(d)**	light brown				Maunawili	3
		medium brown				Tropical Ruby	5
		dark brown					7
38. **(+)**	**MG**	**Fruit: days for mature after blooming**	to be checked to delete or not (TWF40)	BR to delete	To be deleted. (JP)		
QN		short				Maunawili	1
		medium					2
		long					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) Plant, one-year-old shoot and young shoot: All observations on the plant, one-year-old shoot and young shoot should be made at the harvest time.

(b) Leaf blade: All observations on the leaf blade should be made on fully developed leaves. Leaves should be taken from the middle third of ~~the current season's~~ one-year-old shoot.

(c) Flower: All observations on the flower should be made within the day its flower bloomed.

(d) Fruit and stone ~~seed~~: All observations on the fruit and stone should be made at the time of physiological ripeness.

8.2 Explanations for individual characteristics

Ad. 1: Plant: growth habit

1
upright

2
spreading

3
weeping

Ad. 2: Plant: vigor

The vigor of the plant should be considered as the overall abundance of vegetative growth.

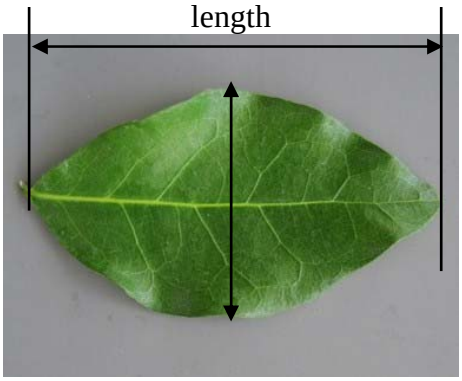
Ad. 3: Plant: density of branches

3
sparse

5
medium

7
dense

Ad. 8: Leaf blade: length
Ad. 9: Leaf blade: ratio length/width



Ad. 9: Leaf blade: ratio length/width

3
moderately elongated

5
medium

7
moderately compressed

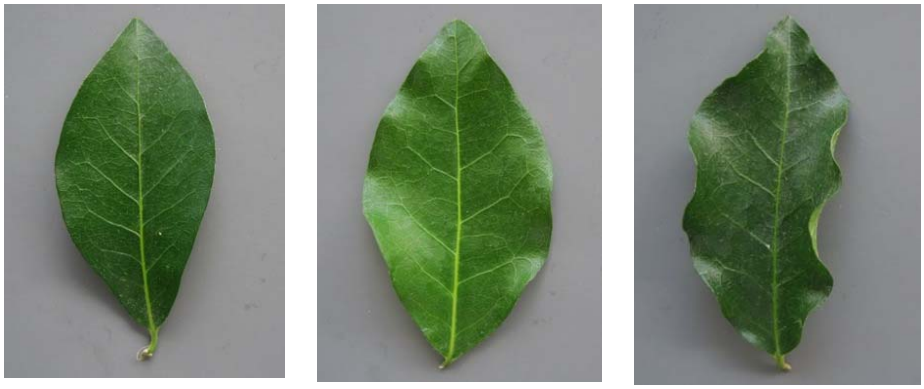
Ad. 10: Leaf blade: position of broadest part

1
towards base

2
at middle

3
towards apex

Ad. 11: Leaf blade: undulation of margin



3
weak

5
medium

7
strong

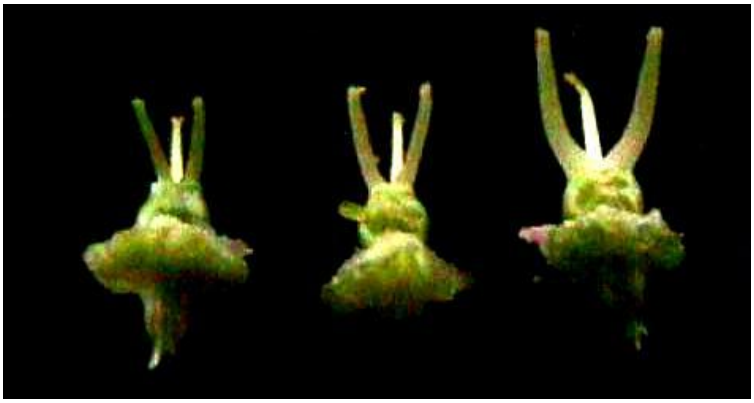
Ad. 12: Leaf blade: angle of apex

3
small

5
medium

7
large

Ad. 16 (New): Flower: shape of style



1
straitght

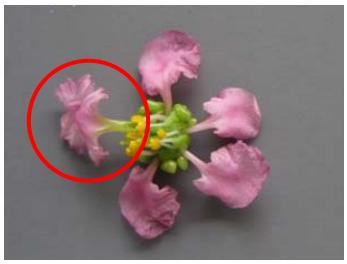
2
slightly curved

3
curved

Ad. 17: Petal: undulation of margin exclude the largest petal

Marked petal is the largest one.

1
weak



2
medium

3
strong

Ad. 18: Petal: color

Alternative 1

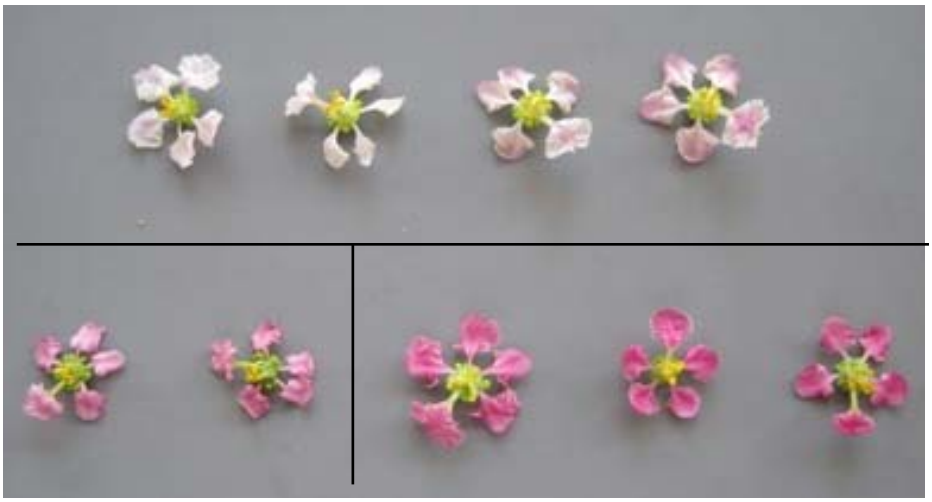
1
white

2
light pink

3
medium pink

Alternative 2

1
white

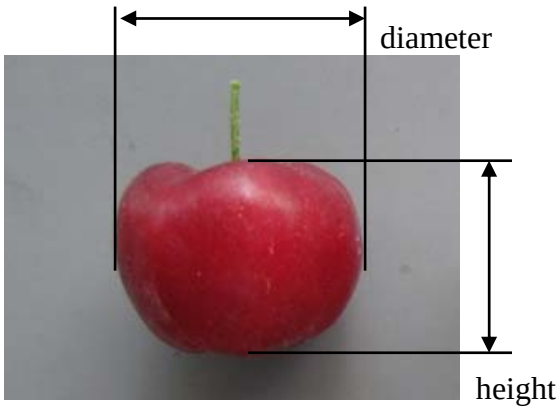


2
light pink

3
medium pink

*Photographs provide information about not color itself but degree of color among states.

Ad. 19 Fruit: height
Ad. 21 Fruit: ratio height/diameter



Ad. 21 Fruit: ratio height/diameter

3
moderately elongated

5
medium

7
moderately compressed

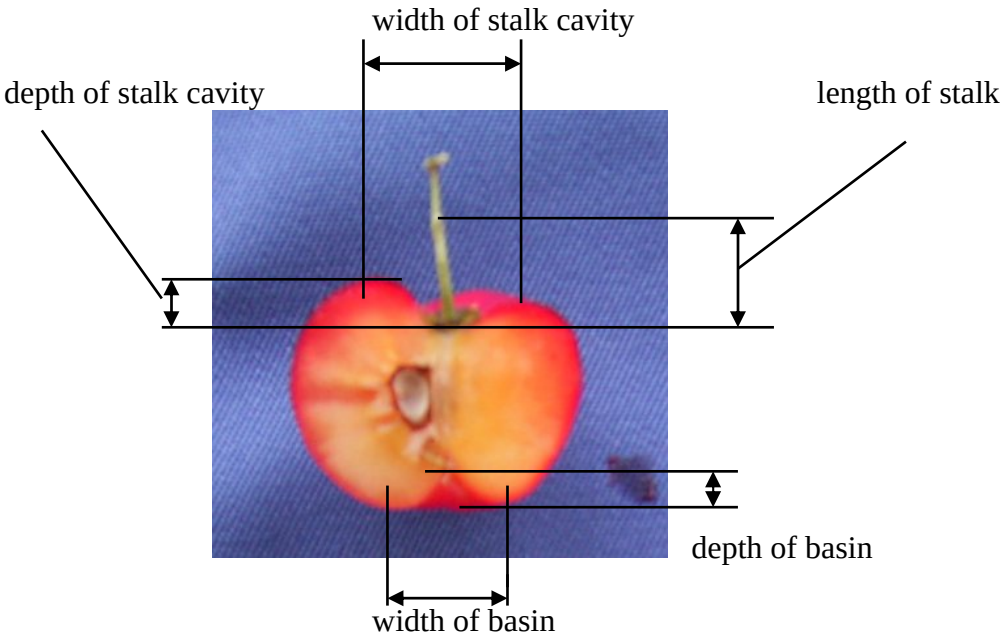
Ad. 24 Fruit: depth of grooves

1
shallow

2
medium

3
deep

Ad. 25 Fruit: depth of basin
Ad. 26 Fruit: width of basin
Ad. 27 Fruit: depth of stalk cavity
Ad. 28 Fruit: width of stalk cavity
Ad. 30 Fruit: length of stalk



Ad. 31 Fruit: thickness of skin
To be deleted.(JP)

9. Literature

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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 Botanical name	*Malpighia emarginata* DC.
1.2 Common name	Acerola

2. Applicant

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

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

#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)

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

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

(……..……..…)	(……..……..…)
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)

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 Seed [ ]

4.2.3 Other [ ]

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 (9)	**Leaf blade: ratio length/width**		
	very elongated		1[ ]
	very elongated to moderately elongated		2[ ]
	moderately elongated		3[ ]
	moderately elongated to medium		4[ ]
	medium		5[ ]
	medium to moderately compressed		6[ ]
	moderately compressed		7[ ]
	moderately compressed to very compressed		8[ ]
	very compressed		9[ ]
5.2 (18)	**Petal: color**		
	white		1[ ]
	light pink	Manuawili	2[ ]
	medium pink	Hawaiian Queen	3[ ]

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

5.3 (21)	**Fruit: ratio height/diameter**		
	very elongated		1[ ]
	very elongated to moderately elongated		2[ ]
	moderately elongated	Maunawili	3[ ]
	moderately elongated to medium		4[ ]
	medium		5[ ]
	medium to moderately compressed		6[ ]
	moderately compressed		7[ ]
	moderately compressed to very compressed		8[ ]
	very compressed		9[ ]
5.4 (22)	**Fruit: weight**		
	very low		1[ ]
	very low to low		2[ ]
	low	Maunawili, Sertaneja	3[ ]
	low to medium		4[ ]
	medium	Hawaiian Queen, Rubra	5[ ]
	medium to high		6[ ]
	high	Cabocla, C.F.Rehnborg	7[ ]
	high to very high		8[ ]
	very high		9[ ]

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

5.5 (34)	**Fruit: acidity**		
	very low		1[ ]
	very low to low		2[ ]
	low	Rubra	3[ ]
	low to medium		4[ ]
	medium	Cabocla, Maunawili	5[ ]
	medium to high		6[ ]
	high	Sertaneja	7[ ]
	high to very high		8[ ]
	very high		9[ ]

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	*Fruit color*	*orange red*	*orange*

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 What is this variety used for?

Fruit [ ] Ornamental [ ]

7.4 Other information

A representative color image of the variety should accompany the Technical Questionnaire.

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.

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

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”.

……

9.3 Has the plant material to be examined been tested for the presence of virus or other pathogens?

Yes [ ]

(please provide details as specified by the Authority)

No [ ]

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]