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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

VANILLA

UPOV Code VANIL_PLA

Vanilla planifolia Jacks.*

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from Mexico

to be considered by the

Enlarged Editorial Committee at its meeting
to be held in Geneva, on January 8 and 9, 2014

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Vanilla planifolia Jacks.	Vanilla	Vanillier	Vanille-Pflanze	Vainilla, Xanath

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.]

TABLE OF CONTENTS PAGE

1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Vanilla planifolia* Jacks. and interspecific hybrids.

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 cuttings with 2 nodes minimum or one year old plants.

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

10 cuttings or 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. In particular, it is essential that the plants produce a satisfactory crop of fruit in for the growing cycle.

3.1.2 The growing cycle is considered to be the period ranging from the beginning of active vegetative growth or flowering, continuing through active vegetative growth or flowering and fruit development and concluding with the harvesting of fruit.

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. In particular, it is essential that the plants produce a satisfactory crop of fruit in the main fruiting period in each of the two growing years, since the species may have waves of fruiting within a year.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 10 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, for the purposes of distinctness, 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, disregarding any off-type plants.

In the case of observations of parts taken from single 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 of vegetatively propagated varieties, a population standard of 1% and an acceptance probability of at least 95 % should be applied. In the case of a sample size of 10 plants, one 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) Stem: intensity of green color (characteristic 1)
(b) Leaf blade: variegation (characteristic 12)
(c) Only varieties without variegation: Leaf blade: intensity of green color (characteristic 13)
(d) Leaf blade: shape (characteristic 20)
(e) Fruit: length (characteristic 27)

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)-(c)	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**	**Stem: intensity of green color**	**Tige : intensité de la couleur verte**	**Stengel: Intensität der grünen Farbe**	**Tallo: intensidad del color verde**		
QN	**(a)**	light	claire	hell	claro	Acamaya	1
		medium	moyenne	mittel	medio	Oreja de Burro, Princesa, Totonaku	2
		dark	foncée	dunkel	oscuro	Amarela, Espada	3
2.	**VG**	**Stem: variegation**	**Tige : panachure**	**Stengel: Panaschierung**	**Tallo: variegación**		
QL	**(a)**	absent	absente	fehlend	ausente	Totonaku	1
		present	présente	vorhanden	presente	Acamaya	9
3. **(+)**	**VG**	**Stem: shape in cross section**	**Tige : forme en section transversale**	**Stengel: Form im Querschnitt**	**Tallo: forma en sección transversal**		
PQ	**(a)**	round	arrondie	rund	redondo	Acamaya, Totonaku	1
		round to angular	arrondie à angulaire	rund bis kantig	entre redondo y angular		2
		angular	angulaire	kantig	angular		3
4.	**VG/ MS**	**Stem: diameter**	**Tige : diamètre**	**Stengel: Durchmesser**	**Tallo: diámetro**		
QN	**(a)**	small	petit	klein	pequeño	Acamaya, Princesa	3
		medium	moyen	mittel	medio	Totonaku	5
		large	grand	groß	grande	Amarela	7
5.	**VG/ MS**	**Stem: internode length**	**Tige : longueur de l'entre-nœud**	**Stengel: Internodienlänge**	**Tallo: longitud del entrenudo**		
QN	**(a)**	short	court	kurz	corto	Acamaya, Princesa	3
		medium	moyen	mittel	medio	Amarela, Totonaku	5
		long	long	lang	largo	Oreja de Burro	7
6.	**VG**	**Stem: surface**	**Tige : surface**	**Stengel: Oberfläche**	**Tallo: superficie**		
QN	**(a)**	smooth	lisse	glatt	lisa	Acamaya, Totonaku	1
		medium	moyenne	mittel	media	Amarela	2
		rough	rugueuse	rauh	rugosa		3
7.	**VG**	**Stem: spots**	**Tige : taches**	**Stengel: Flecken**	**Tallo: punteado**		
(+)							
QL	**(a)**	absent	absentes	fehlend	ausente	Princesa, Totonaku	1
		present	présentes	vorhanden	presente	Espada, Oreja de Burro	9
8. **(*)** **(+)**	**VG**	**Leaf blade: conspicuousness of main vein**	**Limbe : netteté de la nervure principale**	**Blattspreite: Ausprägung der Hauptader**	**Limbo: visibilidad del nervio principal**		
QN	**(a)**	weak	faible	schwach	débil	Princesa, Totonaku	1
		medium	moyenne	mittel	media		2
		strong	forte	stark	fuerte		3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
9. **(*)** **(+)**	**VG**	**Leaf blade: shape of apex**	**Limbe : forme du sommet**	**Blattspreite: Form der Spitze**	**Limbo: forma del ápice**		
PQ	**(a)**	acute	aigu	spitz	agudo	Acamaya, Oreja de Burro	1
		obtuse	obtus	stumpf	obtuso	Princesa, Totonaku	2
		acuminate	acuminé	zugespitzt	acuminado	Espada	3
10. **(*)**	**VG/ MS**	**Leaf: petiole length**	**Feuille : longueur du pétiole**	**Blatt: Länge des Blattstiels**	**Hoja: longitud del pecíolo**		
QN	**(a)**	short	court	kurz	corto	Princesa	1
		medium	moyen	mittel	medio	Acamaya, Totonaku	2
		long	long	lang	largo		3
11. **(+)**	**VG**	**Leaf blade: base**	**Limbe : base**	**Blattspreite: Basis**	**Limbo: base**		
QL	**(a)**	clasping	étreignante	umfassend	amplexicaule	Oreja de Burro, Totonaku	1
		tapering	effilée	verjüngt	atenuada	Acamaya, Princesa	2
12. **(*)** **(+)**	**VG**	**Leaf blade: variegation**	**Limbe : panachure**	**Blattspreite: Panaschierung**	**Limbo: variegación**		
QL	**(a)**	absent	absente	fehlend	ausente	Oreja de Burro, Totonaku	1
		present	présente	vorhanden	presente	Acamaya	9
13. **(*)** **(+)**	**VG**	**Only varieties without variegation: Leaf blade: intensity of green color**	**Seulement variétés sans panachure : Limbe : intensité de la couleur verte**	**Nur Sorten ohne Panaschierung: Blattspreite: Intensität der grünen Farbe**	**Solo variedades sin variegación: Limbo: intensidad del color verde**		
QN	**(a)**	light	claire	hell	claro	Oreja de Burro	1
		medium	moyenne	mittel	medio	Totonaku	2
		dark	foncée	dunkel	oscuro	Amarela	3
14.	**VG/ MS**	**Leaf blade: length**	**Limbe : longueur**	**Blattspreite: Länge**	**Limbo: longitud**		
QN	**(a)**	short	court	kurz	corto	Acamaya	3
		medium	moyen	mittel	medio	Princesa, Totonaku	5
		long	long	lang	largo	Oreja de Burro	7
15.	**VG/ MS**	**Leaf blade: width**	**Limbe : largeur**	**Blattspreite: Breite**	**Limbo: anchura**		
QN	**(a)**	narrow	étroit	schmal	estrecho	Acamaya	3
		medium	moyen	mittel	medio	Princesa, Totonaku	5
		broad	large	breit	ancho	Oreja de Burro	7
16. **(+)**	**VG/ MS**	**Leaf blade: length/width ratio**	**Limbe : rapport longueur/largeur**	**Blattspreite: Verhältnis Länge/Breite**	**Limbo: relación longitud/anchura**		
QN	**(a)**	low	bas	klein	baja	Amarela	3
		medium	moyen	mittel	media	Oreja de Burro, Totonaku	5
		high	élevé	groß	alta	Espada	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
17.	**VG**	**Leaf blade: symmetry**	**Limbe : symétrie**	**Blattspreite: Symmetrie**	**Limbo: simetría**		
QN	**(a)**	symmetric or slightly asymmetric	symétrique ou légèrement asymétrique	symmetrisch oder leicht asymmetrisch	simétrico o ligeramente asimétrico	Princesa, Totonaku	1
		moderately asymmetric	modérément asymétrique	mäßig asymmetrisch	moderadamente asimétrico	Espada	2
		strongly asymmetric	fortement asymétrique	stark asymmetrisch	muy asimétrico		3
18. (*)	**VG/ MS**	**Leaf: thickness**	**Feuille : épaisseur**	**Blatt: Dicke**	**Hoja: grosor**		
QN	**(a)**	thin	mince	dünn	delgada	Acamaya	1
		medium	moyenne	mittel	media	Princesa, Totonaku	2
		thick	épaisse	dick	gruesa	Oreja de Burro	3
19. (+)	**VG**	**Leaf blade: transversal section**	**Limbe : section transversale**	**Blattspreite: Querschnitt**	**Limbo: sección transversal**		
QN	**(a)**	flat or slightly concave	plate ou légèrement concave	flach oder leicht konkav	plano o ligeramente cóncavo	Acamaya, Totonaku	1
		moderately concave	modérément concave	mäßig konkav	moderadamente cóncavo	Espada	2
		strongly concave	fortement concave	stark konkav	muy cóncavo	Oreja de Burro	3
20. (*) (+)	**VG**	**Leaf blade: shape**	**Limbe : forme**	**Blattspreite: Form**	**Limbo: forma**		
PQ	**(a)**	narrow ovate	ovale étroit	schmal eiförmig	oval estrecho	Espada	1
		medium ovate	ovale moyen	mittel eiförmig	oval medio		2
		elliptic	elliptique	elliptisch	elíptico	Princesa	3
		oblong	oblong	rechteckig	oblongo	Acamaya, Totonaku	4
		obovate	obovale	verkehrt eiförmig	oboval	Oreja de Burro	5
21.	**VG/ MG**	**Inflorescence: number of flowers**	**Inflorescence : nombre de fleurs**	**Blütenstand: Anzahl von Blüten**	**Inflorescencia: número de flores**		
QN	**(b)**	few	petit	gering	bajo	Acamaya	3
		medium	moyen	mittel	medio	Oreja de Burro, Princesa	5
		many	grand	hoch	alto	Totonaku	7
22. (+)	**VG/ MS**	**Flower: length of gynandrium**	**Fleur : longueur du gynandrium**	**Blüte: Länge der Befruchtungssäule**	**Flor: longitud del ginostemo**		
QN	**(b)**	short	court	kurz	corto		1
		medium	moyen	mittel	medio		2
		long	long	lang	largo		3
23.	**VG/ MS**	**Flower: length of petals**	**Fleur : longueur des pétales**	**Blüte: Länge der Blütenblätter**	**Flor: longitud del los pétalos**		
QN	**(b)**	short	courts	kurz	cortos		1
		medium	moyens	mittel	medios	Oreja de Burro, Totonaku	2
		long	longs	lang	largos		3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
24.	**VG/ MS**	**Flower: width of petal**	**Fleur : largeur du pétale**	**Blüte: Breite des Blütenblattes**	**Flor: anchura de los pétalos**		
QN	**(b)**	narrow	étroit	schmal	estrechos		1
		medium	moyen	mittel	medios		2
		broad	large	breit	anchos		3
25.	**VG**	**Fruit: shape**	**Fruit : forme**	**Frucht: Form**	**Fruto: forma**		
(+)							
PQ	**(c)**	ovate	ovale	eiförmig	oval		1
		oblong	oblong	rechteckig	oblongo	Totonaku	2
		obovate	obovale	verkehrt eiförmig	oboval	Amarela	3
26.	**VG**	**Fruit: transversal section shape**	**Fruit : forme en section transversale**	**Frucht: Form des Querschnitts**	**Fruto: forma en sección transversal**		
(+)							
PQ	**(c)**	triangular	triangulaire	dreieickig	triangular	Amarela	1
		broad ovate	ovale large	breit eiförmig	oval ancho		2
		medium ovate	ovale moyen	mittel eiförmig	oval medio		3
		trullate	trullé	rautenförmig	en forma de llana		4
		circular	circulaire	rund	circular		5
		elliptic	elliptique	elliptisch	elíptico		6
27. **(*)**	**VG/ MS**	**Fruit: length**	**Fruit : longueur**	**Frucht: Länge**	**Fruto: longitud**		
QN	**(c)**	short	court	kurz	corto	Acamaya	3
		medium	moyen	mittel	medio	Totonaku	5
		long	long	lang	largo	Amarela	7
28.	**VG**	**Fruit: grooves**	**Fruit : cannelures**	**Frucht: Riefen**	**Fruto: surcos**		
QN	**(c)**	absent or slightly visible	absentes ou légèrement visibles	fehlend oder kaum sichtbar	ausentes o poco visibles	Oreja de Burro, Princesa, Totonaku	1
		moderately visible	modérément visibles	mäßig sichtbar	moderadamente visibles		2
		clearly visible	clairement visibles	deutlich sichtbar	muy visibles		3
29.	**MS**	**Fruit: vanillin content**	**Fruit : teneur en vanilline**	**Frucht: Vanillingehalt**	**Fruto: contenido de vainillina**		
(+)							
QN	**(c)**	very low	très faible	sehr gering	muy bajo	Parahurahu	1
		low	faible	gering	bajo	Tahiti	3
		medium	moyenne	mittel	medio	Ordinaire	5
		high	forte	hoch	alto		7
		very high	très forte	sehr hoch	muy alto	Manitra amoyonye	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
30. **(+)**	**MS**	**Fruit: anisic alcohol content**	**Fruit : teneur en alcool anisique**	**Frucht: Gehalt an anisischem Alkohol**	**Fruto: contenido de alcohol anísico**		
QN	**(c)**	very low	très faible	sehr gering	muy bajo	Ordinaire	1
		low	faible	klein	bajo		3
		medium	moyenne	mittel	medio	Parahurahu	5
		high	forte	hoch	alto	Tahiti	7

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) Stem and leaf: observations on stem and fully developed leaves should be made, when the first fruit is fully developed. The observations on stem should be taken at mid-length of the stem. Observations on the leaf blade should be from the middle third of the stem.

(b) Inflorescence and flower: observations should be made on fully expanded inflorescence and from the first freshly opened flower.

(c) Fruit: observations should be made on fruit at physiological maturity

8.2 Explanations for individual characteristics

Ad. 3: Stem: shape in cross section

1 round | 2 round to angular | 3 angular

Ad. 7: Stem: spots

1 absent | 9 present

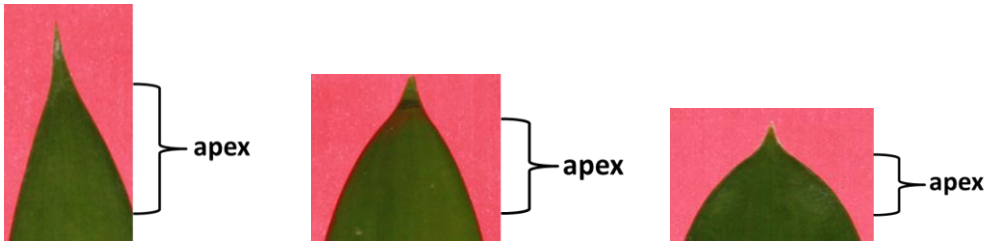
Ad. 8: Leaf blade: conspicuousness of main vein

1
weak

2
medium

3
strong

Ad. 9: Leaf blade: shape of apex



1
acute

2
obtuse

3
acuminate

Ad. 11: Leaf blade: base

1
clasping

2
tapering

Ad. 12: Leaf blade: variegation

1
absent

9
present

Ad. 16: Leaf blade: length/width ratio

← broadest part →	
(below middle)	at middle

width (ratio length/width) ↓ broad (low) → narrow (high)		
		 7 high
		 5 medium
	 3 low	

Ad. 19: Leaf blade: transversal section

1
flat or slightly concave

2
moderately concave

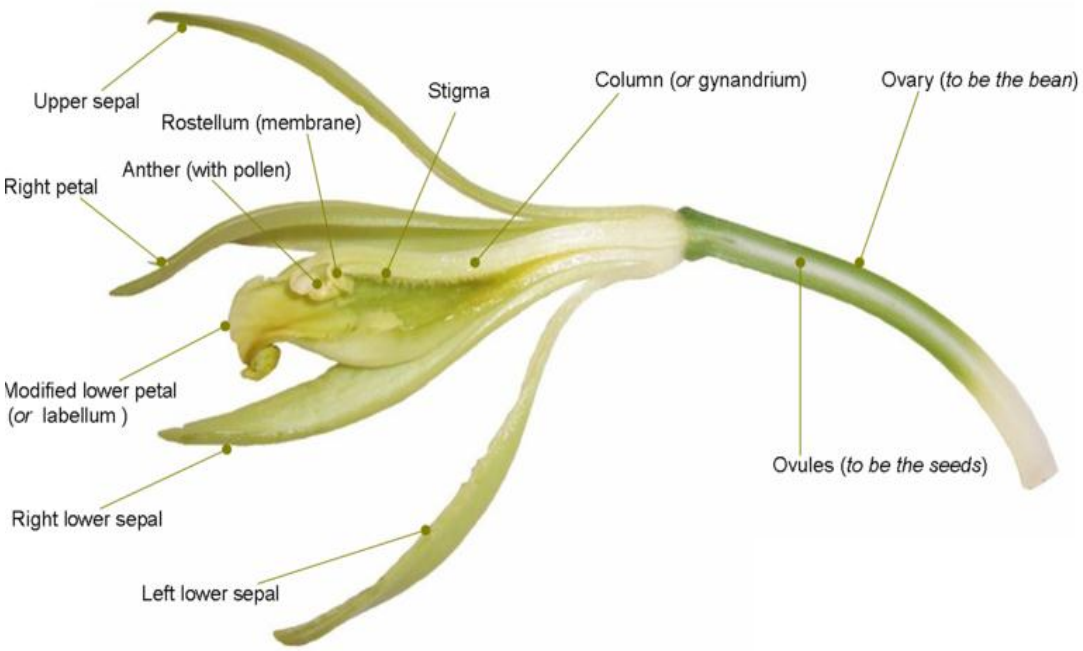
3
strongly concave

Ad. 20: Leaf blade: shape

		< broadest part >			
		(below middle)		at middle	(above middle)
< lateral outline >	flat parallel sides			 4 oblong	
	rounded	 1 narrow ovate	 2 medium ovate	 3 elliptic	 5 obovate

Ad. 22: Flower: length of gynandrium

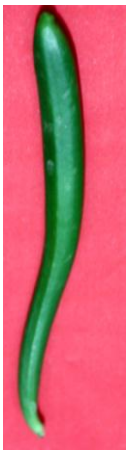
Observations should be made on the first flower.



Ad. 25: Fruit: shape

1
ovate

2
oblong



3
obovate

Ad. 26: Fruit: transversal section shape

	← broadest part →	
	(below middle)	at middle
broad (low) ← width (ratio length/width) → narrow (high)		
	 4 trullate	
 3 medium ovate		 6 elliptic
 2 broad ovate		 5 circular
 1 triangular		

Ad. 29: Fruit: vanillin content
Ad. 30: Fruit: anisic alcohol content

Protocol for the analysis of aroma compounds in vanilla mature pods

1. Sample collection

At least five mature pods (about 8 month post pollination, green/yellow color) collected on 5 distinct vines are collected from the vines and analyzed separately. The pods are weighted before storage at -80°C. They are then freeze-dried and weighted again in order to evaluate the water content.

2. Extraction

Five hundred milligrams of dry powder is suspended in 10 mL of water. After addition of 0.5 mL of sulfuric acid (18M), the suspension is thoroughly mixed and placed in a steam bath at 60°C for 2h. The mixture is cooled to room temperature and 1mL KOH (9.4M) is added to neutralize the mixture. Ethanol (20 mL) is added, and the mixture is thoroughly mixed and macerated for 4 hours. Subsequently, the mixture is poured through a sintered filter and the filtrate collected in a 50 mL flask. The filter cake is washed with ethanol until the total volume of filtrate and washings came up to 50 mL. The ethanolic solution is then extracted exhaustively with diethyl ether/pentane (1:1; total volume = 100 mL) and dried over anhydrous sodium sulfate prior to GC analysis.

3. GC analysis

Each extract is subjected to triple measurement using Gas Chromatography.
Quantification of the compounds (vanillin, 4-hydroxybenzyl alcohol, vanillic acid, 4-hydroxybenzaldehyde, anisic alcohol, anisic acid and 4-hydroxybenzoic acid) can be for instance as in Kaunzinger et al. (1997).

9. Literature

Bouriquet, G. 1954 : Le Vanillier et la vanille dans le monde. Encyclopédie biologique - XLVI. Editions Paul Lechevalier. Paris. 746 p.

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Curti D., E. 1995: Cultivo y beneficiado de la vainilla en México. Folleto Técnico para productores. Organización Nacional de Vainilleros Indigenas. Papantla, Veracruz, México. 96 p.

Kaunzinger, A., Juchelka, D., Mosandl, A., 1997: Progress in the Authenticity Assessment of Vanilla. 1. Initiation of Authenticity Profiles. J. Agric. Food Chem. 45, 1752-1757

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Lubinsky, P., Cameron, K.M., Molina, M. C., Wong, S. Lepers-Andrzejewski, A.Gómez P. and S.C. Kim. 2008: Neotropical roots of a Polynesian spice: The Hibrid origin of Tahitian vanilla, *Vanilla tahitensis* (Orchidaceae) Am. J. Bot. 95 (8): 1040-1047

Lubinsky, P., Bory, S., Hernández, J., Kim, S.C. and A. Gómez P. 2008: Origins and dispersal of cultivated vanilla (*Vanilla planifolia* Jacks. (Orchidaceae). Econ. Bot. 62(2): 127-138.

Soto A., M. A. 1993: *Vainilla odorata*, una especie de amplia distribución. Orquidea 13(1-2): 205-300.

Soto. A., M.A. 2006: La Vainilla: Retos y perspectivas de su cultivo. Biodiversitas 66: 2-9.

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	*Vanilla planifolia* Jacks.
1.2 Common name	Vanilla

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)

(……..……..…) 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 Seed-propagated varieties

(a) Self-pollination [ ]
(b) Cross-pollination
(i) population [ ]
(ii) synthetic variety [ ]
(c) Hybrid [ ]
(d) Other [ ]
(please provide details)

4.2.2 Vegetative propagation

(a) cuttings [ ]
(b) *in vitro* propagation [ ]
(c) grafting [ ]
(d) other (state method) [ ]

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)	**Stem: intensity of green color**		
	light	Acamaya	1[ ]
	medium	Oreja de Burro, Princesa, Totonaku	2[ ]
	dark	Amarela, Espada	3[ ]
5.2 (12)	**Leaf blade: variegation**		
	absent	Oreja de Burro, Totonaku	1[ ]
	present	Acamaya	9[ ]
5.3 (13)	**Only varieties without variegation: Leaf blade: intensity of green color**		
	light	Oreja de Burro	1[ ]
	medium	Totonaku	2[ ]
	dark	Amarela	3[ ]
5.4 (20)	**Leaf blade: shape**		
	narrow ovate	Espada	1[ ]
	medium ovate		2[ ]
	elliptic	Princesa	3[ ]
	oblong	Acamaya, Totonaku	4[ ]
	obovate	Oreja de Burro	5[ ]
5.5 (27)	**Fruit: length**		
	very short		1[ ]
	very short to short		2[ ]
	short	Acamaya	3[ ]
	short to medium		4[ ]
	medium	Totonaku	5[ ]
	medium to long		6[ ]
	long	Amarela	7[ ]
	long to very long		8[ ]
	very long		9[ ]

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	*Fruit: color*	*yellow*	*dark 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

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.

[#] 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:

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”.

……

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]