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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

CATHARANTHUS*

(Catharanthus roseus (L.) G. Don)

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*to be considered by the Technical Committee at its fortieth session,
to be held in Geneva, Switzerland, from March 29 to 31, 2004*

Alternative Names: *

<i>Latin</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Catharanthus roseus</i> (L.) G. Don	Catharanthus, Cape Periwinkle	Pervenche de Madagascar	Zimmerimmergrün	Vinca pervinca, Hierba doncella

ASSOCIATED DOCUMENTS

These guidelines should be read in conjunction with document TG/1/3, “General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants” (hereinafter referred to as 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 *Catharanthus roseus* (L.) G. Don of the family Apocynaceae.

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 seeds or rooted cuttings.

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

- seed-propagated varieties: 600 seeds, preferably in six portions;
- vegetatively propagated varieties: 30 rooted cuttings.

2.4 In the case of seed, the seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority. In cases where the seed is to be stored, the germination capacity should be as high as possible and should, be stated by the applicant.

2.5 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.

2.6 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 *Duration of Tests*

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

3.2 *Testing Place*

The tests should normally be conducted at one place. If any characteristics of the variety, which are relevant for the examination of DUS, cannot be observed at that place, the variety may be tested at an additional place.

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. In particular, unless otherwise indicated, all observations should be made on flowering plants at the time of full flowering.

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

3.4 *Test Design*

3.4.1 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.

3.4.2 In the case of seed-propagated varieties, each test should be designed to result in a total of at least 40 plants.

3.4.3 In the case of vegetatively propagated varieties, each test should be designed to result in a total of at least 20 plants.

3.5 *Number of Plants / Parts of Plants to be Examined*

3.5.1 For seed-propagated varieties, unless otherwise indicated, all observations on single plants should be made on 20 plants or parts taken from each of 20 plants and any other observations made on all plants in the test.

3.5.2 For vegetatively propagated varieties, unless otherwise indicated, all observations on single plants should be made on 10 plants or parts taken from each of 10 plants and any other observations made on all plants in the test.

3.6 *Additional Tests*

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

4. Assessment of Distinctness, Uniformity and Stability

4.1 *Distinctness*

4.1.1 *General Recommendations*

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

4.1.2 *Consistent Differences*

The minimum duration of tests recommended in section 3.1 reflects, in general, the need to ensure that any differences in a characteristic are sufficiently consistent.

4.1.3 Clear Differences

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

4.2 *Uniformity*

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

4.2.2 For the assessment of uniformity of seed-propagated varieties which are self-pollinated, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 40 plants, two off-types are allowed.

4.2.3 For the assessment of uniformity of seed-propagated varieties which are cross-pollinated, or which are hybrids, the recommendations in the General Introduction for cross-pollinated, or hybrid varieties, should be followed, as appropriate.

4.2.4 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 20 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 tested, either by growing a further generation, or by testing a new seed or plant stock to ensure that it exhibits the same characteristics as those shown by the previous material supplied.

5. Grouping of Varieties and Organization of the Growing Trial

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness is 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) Flower: arrangement of petals (characteristic 14)
- (b) Flower: main color of upper side (characteristic 15) with the following groups:
 - Gr.1: white
 - Gr.2: pink
 - Gr.3: red
 - Gr.4: purple
 - Gr.5: other color
- (c) Flower: eye zone (characteristic 16).

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction.

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*

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

6.3 *Types of Expression*

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

6.4 *Example Varieties*

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

6.5 *Legend*

(*) Asterisked characteristic – see Section 6.1.2

QL Qualitative characteristic – see Section 6.3

QN Quantitative characteristic – see Section 6.3

PQ Pseudo-qualitative characteristic – see Section 6.3

(a) – (c) See Explanations on the Table of Characteristics in Chapter 8, Section 8.1

(+) See Explanations on the Table of Characteristics in Chapter 8, Section 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.	Plant: growth habit	Plante : port	Pflanze: Wuchstyp	Planta: porte		
QN	upright	dressé	aufrecht	erecta	Kermesiana	1
	semi-upright	semi-dressé	halbaufrecht	semierecta		2
	horizontal	horizontal	waagrecht	horizontal	Dawn Carpet	3
2. (*)	Plant: height	Plante : hauteur	Pflanze: Höhe	Planta: altura		
QN	short	courte	niedrig	baja	Dawn Carpet	3
	medium	moyenne	mittel	media	Little Bright Eye	5
	tall	haute	hoch	alta	Kermesiana	7
3. (*)	Plant: width	Plante : largeur	Pflanze: Breite	Planta: anchura		
QN	narrow	étroite	schmal	estrecha	Kermesiana	3
	medium	moyenne	mittel	media	Peppermint Cooler	5
	broad	large	breit	ancha	Papion Silver Blue	7
4. (*)	(a) Stem: anthocyanin coloration	Tige : pigmentation anthocyanique	Stiel: Anthocyanfärbung	Tallo: pigmentación antociánica		
QN	absent or very weak	absente ou très faible	fehlend oder sehr gering	ausente o muy débil		1
	weak	faible	gering	débil		3
	medium	moyenne	mittel	media	Little Bright Eye	5
	strong	forte	stark	fuerte	Pink Carpet	7
	very strong	très forte	sehr stark	muy fuerte	Kermesiana	9
5. (*)	(a) Stem: number of primary branches	Tige : nombre de ramifications primaires	Stiel: Anzahl der Seitenäste	Tallo: número de ramificaciones primarias		
QN	few	faible	gering	bajo	Pretty in Pink	3
	medium	moyen	mittel	medio	Little Bright Eye	5
	many	élevé	groß	alto		7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6. (a)	Stem: number of secondary branches	Tige : nombre de ramifications secondaires	Stiel: Anzahl Seitenäste	Tallo: número de ramificaciones secundarias		
QN	few	faible	gering	bajo	Kermesiana	3
	medium	moyen	mittel	medio	Little Bright Eye	5
	many	élevé	groß	alto	Pretty in Pink	7
7. (b)	Leaf: shape	Feuille : forme	Blatt: Form	Hoja: forma		
PQ	linear	linéaire	linear	lineal		1
	oblong	oblong	rechteckig	oblonga	Little Bright Eye	2
	elliptic	elliptique	elliptisch	elíptica	Peppermint Cooler	3
8. (b) (*)	Leaf: length	Feuille : longueur	Blatt: Länge	Hoja: longitud		
QN	short	courte	kurz	corta		3
	medium	moyenne	mittel	media	Little Bright Eye	5
	long	longue	lang	larga	Kermesiana	7
9. (b) (*)	Leaf: width	Feuille : largeur	Blatt: Breite	Hoja: anchura		
QN	narrow	étroite	schmal	estrecha		3
	medium	moyenne	mittel	media	Little Bright Eye	5
	broad	large	breit	ancha	Parasol	7
10. (b) (*)	Leaf: variegation	Feuille : panachure	Blatt: Panaschierung	Hoja: variegación		
QL	absent	absente	fehlend	ausente		1
	present	présente	vorhanden	presente		9
11. (b) (*)	<u>Non-variegated varieties only:</u> Leaf: intensity of green color	<u>Variétés non-panachées seulement :</u> Feuille : intensité de la couleur verte	<u>Nur nicht panaschierte Sorten:</u> Blatt: Intensität der Grünfärbung	<u>Sólo variedades no variegadas:</u> Hoja: intensidad del color verde		
QN	light	claire	hell	claro	Papion Silver Blue	3
	medium	moyenne	mittel	medio	Little Bright Eye	5
	dark	foncée	dunkel	oscuro		7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
12. (b)	Petiole: length	Pétiole : longueur	Blattstiel: Länge	Pecíolo: longitud		
QN	short	court	kurz	corto	Pretty in Pink	3
	medium	moyen	mittel	medio	Little Bright Eye	5
	long	long	lang	largo		7
13. (c) (*) (+)	Flower: diameter	Fleur : diamètre	Blüte: Durchmesser	Flor: diámetro		
QN	small	petit	klein	pequeño		3
	medium	moyen	mittel	medio	Little Bright Eye	5
	large	grand	groß	grande	Parasol	7
14. (c) (*) (+)	Flower: arrangement of petals	Fleur : disposition des pétales	Blüte: Anordnung der Blütenblätter	Flor: disposición de los pétalos		
PQ	free	ouverts	freistehend	libre	Kururi White	1
	touching	tangents	sich berührend	en contacto	Flappe Coconut	2
	slightly overlapping	légèrement chevauchants	leicht überlappend	ligeramente solapada	Flappe Lilac	3
	strongly overlapping	fortement chevauchants	stark überlappend	fuertemente solapada	Peppermint Cooler	4
15. (c) (*)	Flower: main color of upper side	Fleur : couleur principale de la face supérieure	Blüte: Hauptfarbe der Oberseite	Flor: color principal de la parte superior		
PQ	RHS Colour Chart (indicate reference number)	Code RHS de couleurs (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		
16. (c) (*) (+)	Flower: eye zone	Fleur : zone autour de l'œil	Blüte: Augenzone	Flor: zona del ojo		
QL	absent	absente	fehlend	ausente	Papion Silver Blue	1
	present	présente	vorhanden	presente	Peppermint Cooler	9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
17. (*)	(b) Flower: size of eye zone relative to flower size	Fleur : taille de la zone autour de l'œil par rapport à la taille de la fleur	Blüte: Größe der Augenzzone im Verhältnis zur Größe der Blüte	Flor: tamaño de la zona del ojo en relación con el tamaño de la flor		
QN	small	petite	klein	pequeña	Peppermint Cooler	3
	medium	moyenne	mittel	media	Pretty in Pink	5
	large	grande	groß	grande	Dawn Carpet	7
18. (*)	Flower: number of colors of eye zone	Fleur : nombre de couleurs dans la zone autour de l'œil	Blüte: Anzahl Farben der Augenzzone	Flor: número de colores en la zona del ojo		
QL	one	une	eine	uno		1
	two	deux	zwei	dos		2
	more than two	plus de deux	mehr als zwei	más de dos		3
19.	<u>Varieties with one eye zone only:</u> Flower: border of eye zone	<u>Variétés avec une zone autour de l'œil seulement :</u> Fleur : bord de la zone autour de l'œil	<u>Nur Sorten mit einer Augenzzone:</u> Blüte: Rand der Augenzzone	<u>Sólo variedades con zona del ojo:</u> Flor: borde de la zona del ojo		
QL	sharp	obtus	scharf	definido		1
	diffuse	diffus	diffus	difuso		2
20. (*)	(c) Flower: color of inner eye zone	Fleur : couleur de la zone interne autour de l'œil	Blüte: Farbe der inneren Augenzzone	Flor: color del interior de la zona del ojo		
PQ	RHS Colour Chart (indicate reference number)	Code RHS de couleurs (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		
21. (*)	(c) <u>Varieties with more than one eye zone color only:</u> Flower: color of outer eye zone	<u>Variétés avec plusieurs zones autour de l'œil seulement :</u> Fleur : couleur de la zone externe autour de l'œil	<u>Nur Sorten mit mehr als einer Augenzonenfarbe:</u> Blüte: Farbe der äußeren Augenzzone	<u>Sólo variedades con más de un color en la zona del ojo:</u> Flor: color del exterior de la zona del ojo		
PQ	RHS Colour Chart (indicate reference number)	Code RHS de couleurs (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
22.	(c) Flower: color of receptacle	Fleur : couleur du réceptacle	Blüte: Farbe des Blütenbodens	Flor: color del receptáculo		
	(*) (+)					
PQ	white	blanc	weiß	blanco		1
	yellow	jaune	gelb	amarillo		2
	pink	rose	rosa	rosa		3
	red	rouge	rot	rojo		4
	purple	violet	purpurn	púrpura		5
23.	Petal: width	Pétale : largeur	Blütenblatt: Breite	Pétalo: anchura		
QN	narrow	étroit	schmal	estrecho		3
	medium	moyen	mittel	medio		5
	broad	large	breit	ancho		7
24.	(c) Petal: lobing	Pétale : découpure	Blütenblatt: Lappung	Pétalo: lobulado		
	(*)					
QL	absent	absente	fehlend	ausente		1
	present	présente	vorhanden	presente		9

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:

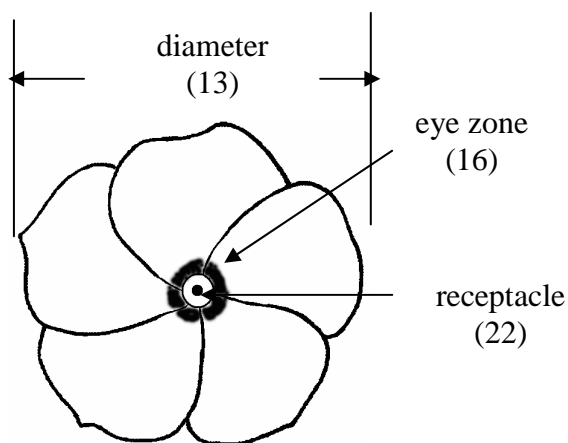
- (a) All observations on the stem should be made on the middle part of main stem.
- (b) All observations on the leaf should be made on leaves on the middle part of main stem.
- (c) All observations on the flower should be made on the second flower to open.

8.2 *Explanations for individual characteristics*

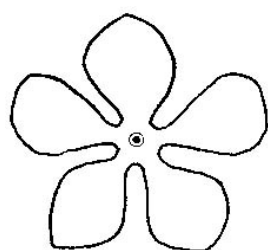
Ad. 13: Flower: diameter

Ad. 16: Flower: eye zone

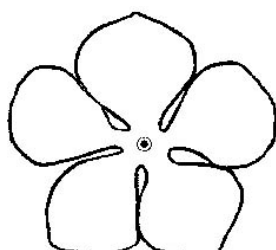
Ad. 22: Flower: color of receptacle



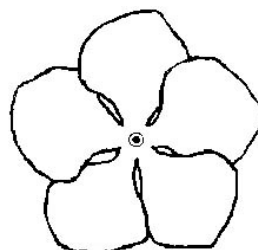
Ad. 14: Flower: arrangement of petals



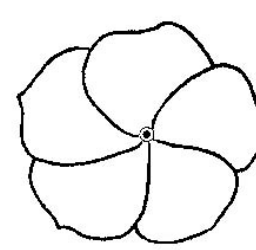
1
free



2
touching



3
slightly overlapping



4
strongly overlapping

9. Literature

Marieke van Bergen, Wim Snoeijer, 1996: Catharanthus G. Don. The Madagascar periwinkle and related species. Wageningen Agricultural University Papers, NL.

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 Latin Name	<input type="text" value="Catharanthus roseus (L.) G. Don"/>	
1.2 Common Name	<input type="text" value="Catharanthus"/>	
2. Applicant		
Name	<input type="text"/>	
Address	<input type="text"/>	
Telephone No.	<input type="text"/>	
Fax No.	<input type="text"/>	
E-mail address	<input type="text"/>	
Breeder (if different from applicant)	<input type="text"/>	
3. Proposed denomination and breeder's reference		
Proposed denomination (if available)	<input type="text"/>	
Breeder's reference	<input type="text"/>	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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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)
- (b) partially known cross []
(please state known parent variety(ies))
- (c) totally unknown cross []

4.1.2 Mutation []
(please state parent variety)

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

4.1.4 Other []
(please provide details)]

4.2 Method of propagating the variety

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	Plant: growth habit		
(1)			
	upright	Kermesiana	1[]
	semi-upright		2[]
	horizontal	Dawn Carpet	3[]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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	Characteristics	Example Varieties	Note
5.2	Plant: height		
(2)			
	short	Dawn Carpet	3[]
	medium	Little Bright Eye	5[]
	tall	Kermesiana	7[]
5.3	Flower: diameter		
(13)			
	small		3[]
	medium	Little Bright Eye	5[]
	large	Parasol	7[]
5.4 i	Flower: main color of upper side		
(15)			
	RHS Colour Chart (indicate reference number)		
		
5.4 ii	Flower: main color of upper side		
(15)			
	white		1[]
	pink		2[]
	red		3[]
	purple		4[]
	other (please specify):		[]
		
5.5	Flower: eye zone		
(16)			
	absent	Papion Silver Blue	1[]
	present	Peppermint Cooler	9[]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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6. Similar varieties and differences from these varieties

Please use the table, and space provided for comments, below 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
<i>Example</i>	<i>Plant: height</i>	<i>short</i>	<i>medium</i>

Comments:

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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9. Information on plant material to be examined.

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 or pesticide) | Yes [] | No [] |
| (c) Tissue culture | Yes [] | No [] |
| (d) Other factors | Yes [] | No [] |

Please provide details of 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]