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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 Working Party for Ornamental Plants and Forest Trees  
at its thirty-sixth session,  
to be held in Niagara Falls, Canada, from September 22 to 26, 2003*

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	Jungfernbrume	Vincapervinca, 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](http://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 root cuttings.

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

- seed-propagated varieties: 600 seeds;
- 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 The following growing conditions are recommended:

Seed sowing

- Time: April/May (in Northern hemisphere).
- Temperature: Germinating period: 25 °C  
Seedling period: 12 °C minimum.
- Need soil covering.

Planting of seedlings and of rooted cuttings

- Time: May/June
- Soil: well-drained, fertile, rich in organic material.

3.3.3 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, which would be divided into 2 replicates.

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, which should be divided into 2 replicates.

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

3.5.1 For seed-propagated varieties, unless otherwise indicated, all observations determined by measuring or counting should be made on 20 plants or parts taken from each of 20 plants.

3.5.2 For vegetatively-propagated varieties, unless otherwise indicated, on 10 plants or parts taken from each of 10 plants.

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, 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, 2 off-type is allowed.

4.2.3 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, 1 off-types are 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
<b>1.</b>	<b>Plant: side view</b>					
(+)	oblong				Kermesiana	1
(PQ)	rhombic				Parasol	2
	obtriangular					3
	flattened				Dawn Carpet	4
<b>2.</b> (*)	<b>Plant: height</b>					
(QN)	short				Dawn Carpet	3
	medium				Little Bright Eye	5
	tall				Kermesiana	7
<b>3.</b> (*)	<b>Plant: width</b>					
(QN)	narrow					1
	medium					2
	broad				Little Bright Eye	3
<b>4.</b>	<b>Stem: anthocianin coloration</b>					
(QN)	(a)	absent or very weak				1
		weak				3
		medium			Little Bright Eye	5
		strong			Pink Carpet	7
		very strong			Kermesiana	9
<b>5.</b>	<b>Stem: number of primary branches</b>					
(QN)	(a)	few			Pretty in Pink	3
		medium			Little Bright Eye	5
		many				7



	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>6.</b>	<b>Stem: number of secondary branches</b>					
(QN)	(a)	few			Kermesiana	3
		medium			Little Bright Eye	5
		many			Pretty in Pink	7
<b>7.</b> (*)	<b>Leaf: shape</b>					
(PQ)	(b)	linear				1
		oblong			Little Bright Eye	2
		elliptic			Peppermint Cooler	3
<b>8.</b> (*)	<b>Leaf: length</b>					
(QN)	(b)	short				3
		medium			Little Bright Eye	5
		long			Kermesiana	7
<b>9.</b> (*)	<b>Leaf: width</b>					
(QN)	(b)	narrow				3
		medium			Little Bright Eye	5
		broad			Parasol	7
<b>10.</b> (*)	<b>Leaf: variegation</b>					
(QN)	(b)	absent				1
		present				9
<b>11.</b> (*)	<b><u>Non variegated varieties only:</u> Leaf: green color of upper side</b>					
(QN)	(b)	light				3
		medium			Little Bright Eye	5
		dark				7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>12.</b>	<b>(b) Petiole: length</b>					
<b>(QN)</b>	short				Pretty in Pink	3
	medium				Little Bright Eye	5
	long					7
<b>13.</b>	<b>Flower: diameter</b>					
<b>(*)</b>						
<b>(+)</b>						
<b>(QN)</b>	<b>(c)</b>	small				3
		medium			Little Bright Eye	5
		large			Parasol	7
<b>14.</b>	<b>Flower: arrangement of petals</b>					
<b>(*)</b>						
<b>(+)</b>						
<b>(QL)</b>	<b>(c)</b>	free				1
		touching				2
		overlapping				3
<b>15.</b>	<b>Flower: main color of upper side</b>					
<b>(*)</b>						
<b>(PQ)</b>	<b>(c)</b>	RHS Colour Chart (indicate reference number)				2
<b>16.</b>	<b>Flower: eye zone</b>					
<b>(*)</b>						
<b>(+)</b>						
<b>(QL)</b>	<b>(c)</b>	absent			Papion Silver Blue	1
		present			Peppermint Cooler	9
<b>17.</b>	<b><u>Varieties with eye zone only:</u> Flower: diameter of eye zone</b>					
<b>(*)</b>						
<b>(QN)</b>	<b>(b)</b>	small				3
		medium				5
		large				7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>18.</b> (*)	<b><u>Varieties with eye zone only:</u> Flower: number of color of eye zone</b>					
(QL)	one					1
	two					2
	more than two					3
<b>19.</b> (*)	<b><u>Varieties with one eye zone only:</u> Flower: border of eye zone</b>					
(QL)	sharp					1
	defuse					2
<b>20.</b> (*)	<b><u>Varieties with more than one eye zone only:</u> Flower: color of inner eye zone</b>					
(PQ)	(c)	RHS Colour Chart (indicate reference number)				2
<b>21.</b> (*)	<b><u>Varieties with more than one eye zone only:</u> Flower: color of outer eye zone</b>					
(PQ)	(c)	RHS Colour Chart (indicate reference number)				2
<b>22.</b> (*) (+)	<b>Flower: color of receptacle</b>					
(PQ)	(c)	white				1
		yellow				2
		pink				3
		red				4

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>23.</b> (*) (+)	<b>Petal: shape of tip</b>					
<b>(PQ)</b>	(c)	acuminate				1
		acute				2
		mucronate				3
		obtuse				4
<b>24.</b>	<b>Petal: lobing</b>					
<b>(QL)</b>	(c)	absent				1
		present				9

8. Explanations on the Table of Characteristics

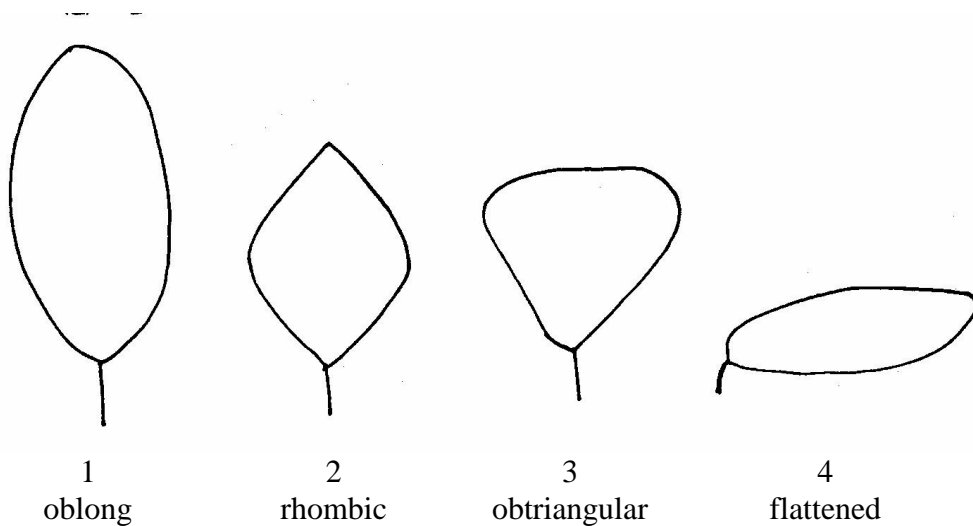
8.1 *Explanations covering several characteristics*

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*

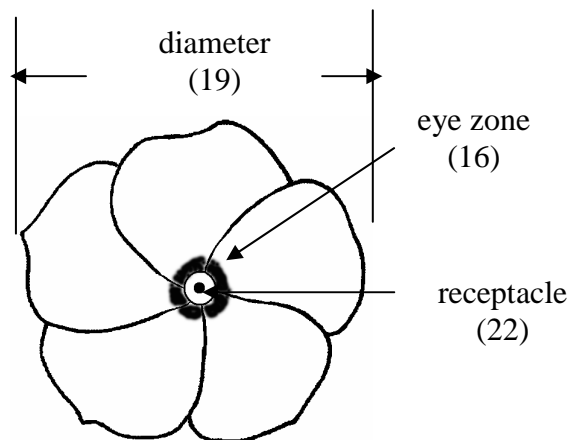
Ad. 1: Plant: side view



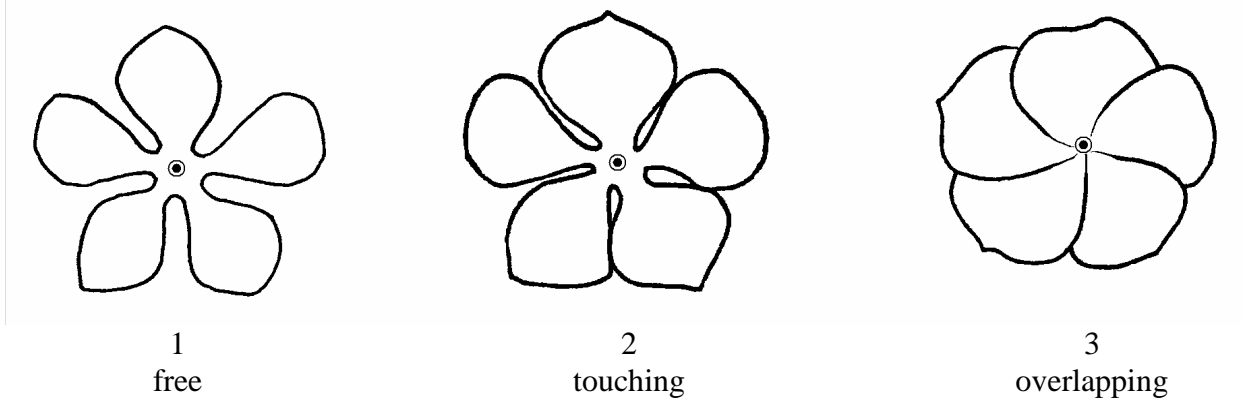
Ad. 13: Flower: diameter

Ad. 16: Flower: eye zone

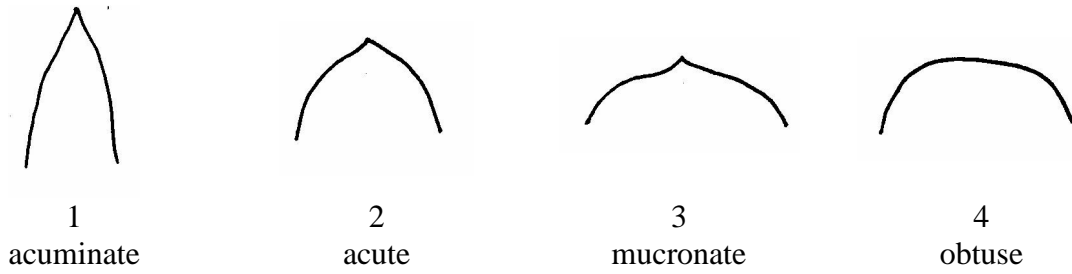
Ad. 22: Flower: color of receptacle



Ad. 14: Flower: arrangement of petals



Ad. 23: Petal: shape of tip



9. Literature

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
		Application date: (not to be filled in by the applicant)
<b>TECHNICAL QUESTIONNAIRE</b> 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
<b>5.1</b>		
<b>(1) Plant: side view</b>		
oblong	Kermesiana	1[ ]
rhombic	Parasol	2[ ]
obtriangular		3[ ]
flattened	Dawn Carpet	4[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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<b>5.2</b>	<b>Plant: height</b>		
(2)			
	short	Dawn Carpet	3[ ]
	medium	Little Bright Eye	5[ ]
	tall	Kermesiana	7[ ]
<b>5.3</b>	<b>Flower: diameter</b>		
(13)			
	small		3[ ]
	medium	Little Bright Eye	5[ ]
	large	Parasol	7[ ]
<b>5.4</b>	<b>Flower: main color of upper side</b>		
(15)			
	RHS Colour Chart (indicate reference number)	.....	
<b>5.5</b>	<b>Flower: eye zone</b>		
(16)			
	absent	Papion Silver Blue	1[ ]
	present	Peppermint Cooler	9[ ]
<b>5.6</b>	<b>Petal: shape of tip</b>		
(23)			
	acuminate		1[ ]
	acute		2[ ]
	mucronate		3[ ]
	obtuse		4[ ]

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 <b>similar</b> variety(ies)	Describe the expression of the characteristic(s) for <b>your</b> candidate variety
<i>Example</i>	<i>Plant:height</i>	<i>note 3</i>	<i>note 7</i>
		<i>short</i>	<i>tall</i>
		<i>90 cm</i>	<i>130 cm</i>

Comments:

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 Special conditions for the examination of the variety

7.2.1 Are there any special conditions for growing the variety or conducting the examination?

Yes [ ] No [ ]

7.2.2 If yes, please give details:

7.3 Other information

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

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".

.....

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