|  |  |  |
| --- | --- | --- |
|  |  | ETG/PEPIN(proj.1)**ORIGINAL:** EnglishDATE: 2015-05-01 |
| INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS  |
| Geneva |
| DRAFT |

|  |  |  |
| --- | --- | --- |
|  |  **Pepino** UPOV Code: SOLAN\_MUR Solanum muricatum Aiton | [[1]](#footnote-1)\* |

**GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY**

prepared by (an) expert(s) from Japan

to be considered by the

Technical Working Party for Vegetables
at its forty-ninth session

to be held in Angers, France,

from 2015-06-15

to 2015-06-19

| Alternative Names:\* |
| --- |
| *Botanical name* | *English* | *French* | *German* | *Spanish* |
| Solanum muricatum Aiton, Solanum muricatum L'Hér. ex Ait. | Melon-pear, Pepino | Poire-melon | Melonenbirne, Pepino | Pepino, Pepino dulce, Peramelón |

|  |
| --- |
| 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.

TABLE OF CONTENTS PAGE

1. Subject of these Test Guidelines 3

2. Material Required 3

3. Method of Examination 3

3.1 Number of Growing Cycles 3

3.2 Testing Place 3

3.3 Conditions for Conducting the Examination 3

3.4 Test Design 3

3.5 Additional Tests 3

4. Assessment of Distinctness, Uniformity and Stability 4

4.1 Distinctness 4

4.2 Uniformity 5

4.3 Stability 5

5. Grouping of Varieties and Organization of the Growing Trial 5

6. Introduction to the Table of Characteristics 5

6.1 Categories of Characteristics 5

6.2 States of Expression and Corresponding Notes 6

6.3 Types of Expression 6

6.4 Example Varieties 6

6.5 Legend 7

7. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres 8

8. Explanations on the Table of Characteristics 15

9. Literature 22

10. Technical Questionnaire 23

# Subject of these Test Guidelines

 These Test Guidelines apply to all varieties of Solanum muricatum Aiton.

These Test Guidelines apply to all vegetative propagated varieties of Solanum muricatum Aiton.

# 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.

* 1. The material is to be supplied in the form of plants.

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

20 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.

# Method of Examination

## 3.1 Number of Growing Cycles

3.1.1 The minimum duration of tests should normally be two independent growing cycles.

## 3.2 Testing Place

 Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 “Examining Distinctness”.

## 3.3 Conditions for Conducting the Examination

3.3.1 The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.

## 3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 15 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.

# 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.

### 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

* + 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 15 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.

# 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) Fruit: shape in longitudinal section (characteristic 17)

(b) Fruit: ground color of fruit (characteristic 21)

Gr. 1: white

Gr. 2: light yellow

Gr. 3: yellow

Gr. 4: orange

(c) Fruit: size of stripes compared with fruit (characteristic 22)

(d) Fruit: color of flesh (characteristic 24)

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”.

# 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)-(e) See Explanations on the Table of Characteristics in Chapter 8.

(+) See Explanations on the Table of Characteristics in Chapter 8.

# Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 1. QN MS (a) |
| **Plant: height** | **Plante: hauteur** | **Pflanze: Höhe** | **Planta: altura** |  |  |
| short | basse | niedrig | baja |  | 3 |
| medium | moyenne | mittel | media | Gold No.1 | 5 |
| tall | haute | hoch | alta |  | 7 |
|  |
|  |  |  |  |  |  |
| 2. QN VG (a) |
| **Stem: intensity of anthocyanin coloration** | **Tige: intensité de la pigmentation anthocyanique** | **Stiel: Intensität der Anthocyanfärbung** | **Tallo: intensidad de la pigmentación antociánica** |  |  |
| absent or weak |  |  |  |  | 1 |
| medium |  |  |  | Gold No.1 | 2 |
| strong |  |  |  |  | 3 |
|  |
|  |  |  |  |  |  |
| 3. QL VG (a) |
| **Stem: pubescence** | **Tige : pilosité** | **Stengel: Behaarung** | **Tallo: pubescencia** |  |  |
| absent | absente | fehlend | ausente |  | 1 |
| present | présente | vorhanden | presente | Gold No.1 | 9 |
|  |
|  |  |  |  |  |  |
| 4. QL VG (a) |
| **Leaf: type** | **Feuille: type** | **Blatt: Typ** | **Hoja: tipo** |  |  |
| simple |  |  |  | Gold No.1 | 1 |
| compound |  |  |  |  | 2 |
|  |
|  |  |  |  |  |  |
| 5. QN MS (a) (d) |
| **Leaf: length** | **Feuille: longueur** | **Blatt: Länge** | **Hoja: longitud** |  |  |
| short | courte | kurz | corta |  | 3 |
| medium | moyenne | mittel | media | Gold No.1 | 5 |
| long | longue | lang | larga |  | 7 |
|  |  |  |  |  |  |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 6. QN MS (a) (d) |
| **Leaf: width** | **Feuille: largeur** | **Blatt: Breite** | **Hoja: anchura** |  |  |
| narrow | étroite | schmal | estrecha |  | 3 |
| medium | moyenne | mittel | media | Gold No.1 | 5 |
| broad | large | breit | ancha |  | 7 |
|  |
|  |  |  |  |  |  |
| 7. (\*) PQ VG (+) (a) |
| **Leaf blade: shape** | **Limbe: forme** | **Blattspreite: Form** | **Limbo: forma** |  |  |
| lanceolate | lancéolé | lanzettlich | lanceolada |  | 1 |
| broad lanceolate |  |  |  | Gold No.1 | 2 |
| elliptic |  |  |  |  | 3 |
| circular |  |  |  |  | 4 |
|  |
|  |  |  |  |  |  |
| 8. QN VG (a) |
| **Leaf blade: intensity of green color** | **Limbe: intensité de la couleur verte** | **Blattspreite: Intensität der Grünfärbung** | **Limbo: intensidad del color verde** |  |  |
| light | claire | hell | clara |  | 3 |
| medium | moyenne | mittel | media |  | 5 |
| dark | foncée | dunkel | oscura | Gold No.1 | 7 |
|  |
|  |  |  |  |  |  |
| 9. QN VG (a) |
| **Inflorescence: number of flowers** | **Inflorescence : nombre de fleurs** | **Blütenstand: Anzahl der Blüten** | **Inflorescencia: número de flores** |  |  |
| one to five |  |  |  |  | 1 |
| six to ten |  |  |  | Gold No.1 | 2 |
| more than ten |  |  |  |  | 3 |
|  |  |  |  |  |  |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 10. QN MS (+) (a) |
| **Flower: diameter** | **Fleur : diamètre** | **Blüte: Durchmesser** | **Flor: diámetro** |  |  |
| small | petit | klein | pequeño |  | 3 |
| medium | moyen | mittel | medio | Gold No.1 | 5 |
| large | grand | groß | grande |  | 7 |
|  |
|  |  |  |  |  |  |
| 11. (\*) PQ VG (a) |
| **Flower: main color of upper side** | **Fleur: couleur principale de la partie supérieure** | **Blüte: Hauptfarbe der Oberseite** | **Flor: color principal de la parte superior** |  |  |
| white |  |  |  | Gold No.1 | 1 |
| yellowish white |  |  |  |  | 2 |
| yellow |  |  |  |  | 3 |
| light purple |  |  |  |  | 4 |
| medium purple |  |  |  |  | 5 |
| dark purple |  |  |  |  | 6 |
|  |
|  |  |  |  |  |  |
| 12. QN VG (a) |
| **Flower: secondary color of upper side** |  |  |
| white |  |  |  |  | 1 |
| yellowish white |  |  |  |  | 2 |
| yellow |  |  |  |  | 3 |
| light purple |  |  |  |  | 4 |
| medium purple |  |  |  | Gold No.1 | 5 |
| dark purple |  |  |  |  | 6 |
|  |  |  |  |  |  |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 13. (\*) PQ VG (b) |
| **Fruit: ground color of skin of young fruit** |  |  |
| white |  |  |  |  | 1 |
| light yellow |  |  |  |  | 2 |
| light green |  |  |  | Gold No.1 | 3 |
| green |  |  |  |  | 4 |
|  |
|  |  |  |  |  |  |
| 14. (\*) QN MS (c) (e) |
| **Fruit: length** | **Fruit: longueur** | **Frucht: Länge** | **Fruto: longitud** |  |  |
| short |  |  |  |  | 3 |
| medium |  |  |  | Gold No.1 | 5 |
| long |  |  |  |  | 7 |
|  |
|  |  |  |  |  |  |
| 15. (\*) QN MS (c) (e) |
| **Fruit: maximum diameter** | **Fruit: diamètre maximum** | **Frucht: maximaler Durchmesser** | **Fruto: diámetro máximo** |  |  |
| small |  |  |  |  | 3 |
| medium |  |  |  | Gold No.1 | 5 |
| large |  |  |  |  | 7 |
|  |
|  |  |  |  |  |  |
| 16. QN MS (c) |
| **Fruit: ratio length/maximum diameter** | **Fruit: rapport longueur/diamètre maximum** | **Frucht: Verhältnis Länge/maximaler Durchmesser** | **Fruto: relación longitud/diámetro máximo** |  |  |
| small |  |  |  |  | 3 |
| medium |  |  |  | Gold No.1 | 5 |
| large |  |  |  |  | 7 |
|  |  |  |  |  |  |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 17. (\*) PQ VG (+) (c) |
| **Fruit: shape in longitudinal section** | **Fruit: forme en section longitudinale** | **Frucht: Form im Längsschnitt** | **Fruto: forma en sección longitudinal** |  |  |
| circular |  |  |  | Gold No.1 | 1 |
| elliptic |  |  |  |  | 2 |
| rectangular |  |  |  |  | 3 |
| heart-shaped |  |  |  |  | 4 |
| obovate |  |  |  |  | 5 |
|  |
|  |  |  |  |  |  |
| 18. QN VG (+) (c) |
| **Fruit: depth of stalk cavity** | **Fruit: profondeur de la cavité du pédoncule** | **Frucht: Tiefe der Stielgrube** | **Fruto: profundidad de la cavidad peduncular** |  |  |
| shallow |  |  |  | Gold No.1 | 3 |
| medium |  |  |  |  | 5 |
| deep |  |  |  |  | 7 |
|  |
|  |  |  |  |  |  |
| 19. PQ VG (+) (c) |
| **Fruit: shape of apex** | **Fruit : forme du sommet** | **Frucht: Form der Spitze** | **Fruto: forma del ápice** |  |  |
| depressed |  |  |  |  | 1 |
| flattened |  |  |  |  | 2 |
| rounded |  |  |  | Gold No.1 | 3 |
| pointed |  |  |  |  | 4 |
|  |
|  |  |  |  |  |  |
| 20. QN MS (c) |
| **Fruit: calyx size compared with maximum diameter of fruit** |  |  |  |  |  |
| small |  |  |  |  | 3 |
| medium |  |  |  | Gold No.1 | 5 |
| large |  |  |  |  | 7 |
|  |  |  |  |  |  |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 21. (\*) PQ VG (c) |
| **Fruit: ground color of fruit** |  |  |  |  |  |
| RHS Colour Chart (indicate reference number) |  |  |  |  |  |
|  |
|  |  |  |  |  |  |
| 22. (\*) QN VG (+) (c) |
| **Fruit: size of stripes compared with fruit** |  |  |  |  |  |
| absent or very small |  |  |  |  | 1 |
| small |  |  |  | Gold No.1 | 3 |
| medium |  |  |  |  | 5 |
| larage |  |  |  |  | 7 |
|  |
|  |  |  |  |  |  |
| 23. (\*) PQ VG (c) |
| **Fruit: color of stripes** |  |  |  |  |  |
| RHS Colour Chart (indicate reference number) |  |  |  |  |  |
|  |
|  |  |  |  |  |  |
| 24. (\*) PQ VG (c) |
| **Fruit: color of flesh** | **Fruit: couleur de la chair** | **Frucht: Farbe des Fruchtfleisches** | **Fruto: color de la pulpa** |  |  |
| white | blanche | weiß | blanco |  | 1 |
| light yellow |  |  |  |  | 2 |
| medium yellow |  |  |  | Gold No.1 | 3 |
| yellowish green |  |  |  |  | 4 |
| green |  |  |  |  | 5 |
| orange |  |  |  |  | 6 |
|  |
|  |  |  |  |  |  |
| 25. QN VG (c) |
| **Fruit: firmness of flesh** | **Fruit: fermeté de la chair** | **Frucht: Festigkeit des Fleisches** | **Fruto: firmeza de la pulpa** |  |  |
| soft | molle | weich | blanda |  | 3 |
| medium | moyenne | mittel | media | Gold No.1 | 5 |
| firm | ferme | fest | firme |  | 7 |
|  |  |  |  |  |  |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 26. QN MS (c) |
| **Fruit: total soluble solids** | **Fruit: teneur en matières solubles** | **Frucht: Gesamt­gehalt an löslicher Trockensubstanz** | **Fruto: contenido total de sólidos solubles** |  |  |
| low | faible | gering | bajo |  | 3 |
| medium | moyenne | mittel | medio | Gold No.1 | 5 |
| high | forte | hoch | alto |  | 7 |
|  |
|  |  |  |  |  |  |
| 27. (\*) QN MS VG (+) (c) |
| **Time of harvest** | **Époque de la récolte** | **Zeitpunkt der Ernte** | **Época de la cosecha** |  |  |
| early | précoce | früh | temprana |  | 3 |
| medium | moyenne | mittel | media | Gold No.1 | 5 |
| late | tardive | spät | tardía |  | 7 |

# 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) Observations on the plant, stems, leaves and flowers should be made on flowering of second inflorescence.

(b) Observations on the young fruits should be made on fruits just before stripes development.

(c) Observations on the fruits should be made on fruits at maturity.

(d) Ad. 5:Leaf: length
Ad. 6:Leaf: width

|  |
| --- |
| Alternative text |
|  |

(e) Ad. 14: Fruit: length
Ad. 15: Fruit: maximum diameter

|  |
| --- |
| Alternative text |
|  |

*8.2 Explanations for individual characteristics*

Ad. 7: Leaf blade: shape

In the case of varieties with the compound leaves, observation should be made on the terminal leaflet.

|  |
| --- |
| Alternative text |
| 1 - lanceolate |
| Alternative text |
| 2 - broad lanceolate |
| Alternative text |
| 3 - elliptic |
| Alternative text |
| 4 - circular |

Ad. 10: Flower: diameter

|  |
| --- |
| Alternative text |
|  |

Ad. 17: Fruit: shape in longitudinal section

|  |
| --- |
| Alternative text |
| 1 - circular |
| Alternative text |
| 2 - elliptic |
| Alternative text |
| 3 - rectangular |
| Alternative text |
| 4 - heart-shaped |
| Alternative text |
| 5 - obovate |

Ad. 18: Fruit: depth of stalk cavity

|  |
| --- |
| Alternative text |
| 3 - shallow |
| Alternative text |
| 5 - medium |
| Alternative text |
| 7 - deep |

Ad. 19: Fruit: shape of apex

|  |
| --- |
| Alternative text |
| 1 - depressed |
| Alternative text |
| 2 - flattened |
| Alternative text |
| 3 - rounded |
| Alternative text |
| 4 - pointed |

Ad. 22: Fruit: size of stripes compared with fruit

The ratio of stripes that occupies to the surface area of the fruit should be assessed.

|  |
| --- |
| Alternative text |
| 1 - absent or very small |
| Alternative text |
| 3 - small |
| Alternative text |
| 5 - medium |
| Alternative text |
| 7 - large |

Ad. 27: Time of harvest

This characteristic is assessed by observing the days from flowering to harvesting matured fruit.

# Literature

Ministry of Agriculture, Forestry & Fisheries of Japan., 2013: National Test Guideline for Pepino.

Bioversity., 2004: Descriptors for Pepino (Solanum muricanum). Bioversity International.

# Technical Questionnaire

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
| --- | --- | --- |
|  |  |  |
|  |  | Application date: |
|  |  | (not to be filled in by the applicant) |
| TECHNICAL QUESTIONNAIREto be completed in connection with an application for plant breeders’ rights |
|  |  |  |
| 1. Subject of the Technical Questionnaire |
| 1.1.1 | Botanical Name | Solanum muricatum Aiton |  |
| 1.1.2 | Common Name | Melon-pear, Pepino |  |
| 1.1.3 |  |  |  |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| 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 schemeVariety 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)

|  |
| --- |
|  |

 |
|  |

|  |
| --- |
| 4.2 Method of propagating the variety4.2.1 Vegetative propagation(a) cuttings [ ](b) in vitro propagation [ ](c) Other (state method) [ ]..................................................................................................................................................: :: ::................................................................................................................................................:4.2.2 Other [ ] (please provide details)..................................................................................................................................................: :: ::................................................................................................................................................:  |

|  |
| --- |
| 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 (17)** | **Fruit: shape in longitudinal section** |  |  |
|  | circular | Gold No.1 | 1[ ] |
|  | elliptic |  | 2[ ] |
|  | rectangular |  | 3[ ] |
|  | heart-shaped |  | 4[ ] |
|  | obovate |  | 5[ ] |
| **5.2 (21)** | **Fruit: ground color of fruit** |  |  |
|  | RHS Colour Chart (indicate reference number) |  | 0[ ] |
| **5.3 (22)** | **Fruit: size of stripes compared with fruit** |  |  |
|  | absent or very small |  | 1[ ] |
|  | small | Gold No.1 | 3[ ] |
|  | medium |  | 5[ ] |
|  | large |  | 7[ ] |
| **5.4 (24)** | **Fruit: color of flesh** |  |  |
|  | white |  | 1[ ] |
|  | light yellow |  | 2[ ] |
|  | medium yellow | Gold No.1 | 3[ ] |
|  | yellowish green |  | 4[ ] |
|  | green |  | 5[ ] |
|  | orange |  | 6[ ] |

|  |
| --- |
| 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: shape in longitudinal section* | *circular* | *elliptic* |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Comments:  |
| 7. Additional information which may help in the examination of the variety7.1 In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety? Yes [ ] No [ ](If yes, please provide details)7.2 Are there any special conditions for growing the variety or conducting the examination? Yes [ ] No [ ](If yes, please provide details) 7.3 Other information |
| 8. Authorization for release (a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health? Yes [ ] No [ ] (b) Has such authorization been obtained? Yes [ ] No [ ] If the answer to (b) is yes, please attach a copy of the authorization. |

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
| --- | --- | --- |
| 9. Information on plant material to be examined or submitted for examination9.1 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 nameSignature Date |

[End of document]

1. \* 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.] [↑](#footnote-ref-1)