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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

GINSENG

UPOV Code(s): PANAX_GIN

Panax ginseng C.A. Mey.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from the Republic of Korea
to be considered by the
Technical Working Party for Agricultural Crops
at its forty-sixth session, to be held in Hanover, Germany,
from 2017-06-19 to 2017-06-23

Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Panax ginseng C.A. Mey.	Ginseng	Ginseng	Ginseng	Ginseng

The purpose of these guidelines ("Test Guidelines") is to elaborate the principles contained in the General Introduction (document TG/1/3), and its associated TGP documents, into detailed practical guidance for the harmonized examination of distinctness, uniformity and stability (DUS) and, in particular, to identify appropriate characteristics for the examination of DUS and production of harmonized variety descriptions.

ASSOCIATED DOCUMENTS

These Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

* These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website (www.upov.int), for the latest information.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Panax ginseng* C.A. Mey.

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 seed.

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

200g or 0.4 liters 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.

2.4 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

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

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.

3.3.2 The optimum stage of development for the assessment of each characteristic is indicated by a number in the second column of the Table of Characteristics. The stages of development denoted by each number are described in Chapter 8.

3.3.4 Each test should be designed to result in a total of at least 60 plants, which should be divided between three replicates.

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 Test Design

3.4.1 Each test should be designed to result in a total of at least 60, which should be divided between at least 3 replicates.

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 or parts of plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 20 plants or parts of plants taken from each of 20 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

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 self-pollinated varieties, a population standard of 3% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 60 plants, 4 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 further examined by testing a new seed or 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 anthocyanin coloration (characteristic 4)
(b) Petiole : intensity of anthocyanin coloration (characteristic 8)
(c) Berry: time of maturity (characteristic 24)
(d) Berry: color (at full maturity) (characteristic 25)
(e) Main root: width (characteristic 27)
(f) Main root: length (characteristic 28)

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

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1 2	**3 4**	**5 6**	**7**			
	Name of characteristics in English	**Nom du caractère en français**	**Name des Merkmals auf Deutsch**	**Nombre del carácter en español**		
	states of expression	types d'expression	Ausprägungsstufen	tipos de expresión		

1 Characteristic number

2 (*) Asterisked characteristic – see Chapter 6.1.2

3 Type of expression
QL Qualitative characteristic – see Chapter 6.3
QN Quantitative characteristic – see Chapter 6.3
PQ Pseudo-qualitative characteristic – see Chapter 6.3

4 Method of observation (and type of plot, if applicable)
MG, MS, VG, VS – see Chapter 4.1.5

5 (+) See Explanations on the Table of Characteristics in Chapter 8.2

6 (a)-(c) See Explanations on the Table of Characteristics in Chapter 8.1

7 Growth stage key See Explanations on the Table of Characteristics in Chapter 8

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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.		**QN MS/VG**	**(+)**				
		Plant: lenght of main stem					
		short				Yunpoong	3
		medium				Gumpoong	5
		long				Chunpoong	7
2.		**QN MS/VG**					
		Plant : diameter of stem					
		thin				Chunpoong	3
		medium				K-1, Chungsun	5
		thick				Sunpoong, Gopoong	7
3.		**QN VS**	**(+)**				
		Stem: rate of plant have more than two stems					
		few				Chunpoong	3
		medium				Kowon	5
		many				Yunpoong	7
4.	**(*)**	**QN VG**	**(+)**				
		Stem: intensity of anthocyanin coloration					
		absent or very weak				Gumpoong, Chungsun	1
		weak				Yunpoong, Chunpoong, Kowon, Cheonryang	3
		medium				Sunpoong, Sunun	5
		strong				K-1, Gopoong	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
5.	**PQ VG**					
	Stem: distribution of anthocyanin coloration					
	on lower and upper part				Chunpoong	1
	on upper part only					2
	along the whole stem					3
	on lower part only				Gopoong	4
6.	**QN MS/VG**					
	Stem: number of leaflet per stem					
	few					3
	medium				Chunpoong	5
	many				Yunpoong, Suwon	7
7.	**QN MS**	**(+)**				
	Petiole: length					
	short				Cheonryang	3
	medium				Gumpoong	5
	long				Kowon	7
8.	**QN VG**	**(+)**				
	Petiole : intensity of anthocyanin coloration					
	absent or very weak				Gumpoong, Chungsun	1
	weak				Chunpoong	3
	medium				Cheonryang	5
	strong				K-1, Gopoong	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
9.	**QN VG**	**(+)**				
	Petiole: attitude in relation to peduncle					
	erect				Chunpoong	1
	semi erect				Yunpoong	3
	spreading					5
10.	**QN MS/VG**					
	Petiolule: length					
	short				Yunpoong, Chunpoong, Sunhyang	3
	medium				Gumpoong, Cheonryang	5
	many				Sunpoong	7
11.	**QN VG**	**(+)** **(a)**				
	Leaf: number of stipules					
	absent or very few				Chunpoong	1
	medium				Suwon	3
	many				Yunpoong	5
12.	**QN VG**	**(a)**				
	Leaf: blistering of surface					
	weak				K-1	3
	medium				Gumpoong	5
	strong				Sunun	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
13.	**QN VG**	**(a)**				
	Leaf: intensity of green color					
	light				Chunpoong	3
	medium				Yunpoong	5
	dark				Suwon	7
14.	**QN MS/VG**	**(+)** **(b)**				
	Leaflet: length					
	short				Yunpoong	3
	medium				Chunpoong, Kowon	5
	long				Gumpoong	7
15.	**QN VG**	**(+)** **(b)**				
	Leaflet: width					
	narrow				Chunpoong	3
	medium				Gopoong	5
	broad				Gumpoong, Sunhyang	7
16.	**PQ VG**	**(+)** **(b)**				
	Leaflet: shape					
	narrow elliptic				Chunpoong	1
	elliptic				Gopoong, Sunhyang	2
	oblong				Gumpoong	3
	spatulate					4

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
17.		**QN VG**	**(+) (b)**				
		Leaflet: shape in cross section					
		concave				Chunpoong	1
		plane				Kowon	2
		convex				K-1, Cheonryang	3
18.		**QN VG**	**(b)**				
		Leaflet: serration of margin					
		weak				Chunpoong	3
		medium				Yunpoong	5
		strong				Sunun	7
19.	**(*)**	**QN MG**	**(+)**				
		Time of sprout					
		early				Chungsun, Sunpoong, Geumsun	3
		medium				Yunpoong	5
		late				K-1, Chunpoong, Kowon, Sunun	7
20.	**(*)**	**QN MG**	**(+)**				
		Time of flowering					
		early				Sunpoong	3
		medium				Yunpoong, K-1	5
		late				Chunpoong	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
21.	**(*)**	**QN VG**	**(+)**				
		Peduncle: length					
		short				Yunpoong	3
		medium				Gumpoong	5
		long				Sunpoong	7
22.	**(*)**	**QL VG**	**(+)**				
		Inflorescence: type					
		simple				Yunpoong	1
		intermediate				Gumpoong	2
		compound					3
23.	**(*)**	**QN VS**	**(+)**				
		Umbel: attitude of lower florets(at berry maturity stage)					
		semi erect				K-1, Gopoong	1
		horizontal				Gumpoong, Chunpoong	2
		semi recurved				Yunpoong	3
24.	**(*)**	**QN MG**	**(+)**				
		Berry: time of maturity					
		early				Gumpoong	3
		medium				Yunpoong	5
		late				Chunpoong	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
25.	**(*)**	**PQ VG**	**(+)**				
		Berry: color (at full maturity)					
		yellow				Gumpoong	1
		pink				Cheonmyeong	2
		orange				Chunpoong	3
		red				Yunpoong, K-1, Sunpoong, Kowon	4
26.		**PQ VG**	**(+)**				
		Leaf: color at senescence					
		yellow				Gumpoong	1
		brown				Chunpoong	2
		red				Yunpoong, K-1, Gopoong	3
27.	**(*)**	**QN MS/VG**	**(+)**	**(c)**			
		Main root: width					
		thin					3
		medium				Chunpoong	5
		thick				Yunpoong	7
28.	**(*)**	**QN MS/VG**		**(c)**			
		Main root: length					
		short				Yunpoong	3
		medium				Gopoong	5
		long				Gumpoong, Chunpoong	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
29.	**PQ VG**	**(c)**				
	Main root: skin color					
	white				Chunpoong	1
	cream				Yunpoong	2
	yellow					3
30.	**QN VG**	**(+)** **(c)**				
	Main root: rate of rootlet					
	few				Chunpoong	1
	medium				Sunpoong	2
	many				K-1, Gopoong	3
31.	**QL VG**	**(+)**				
	Rhizome: presence of stolons					
	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:

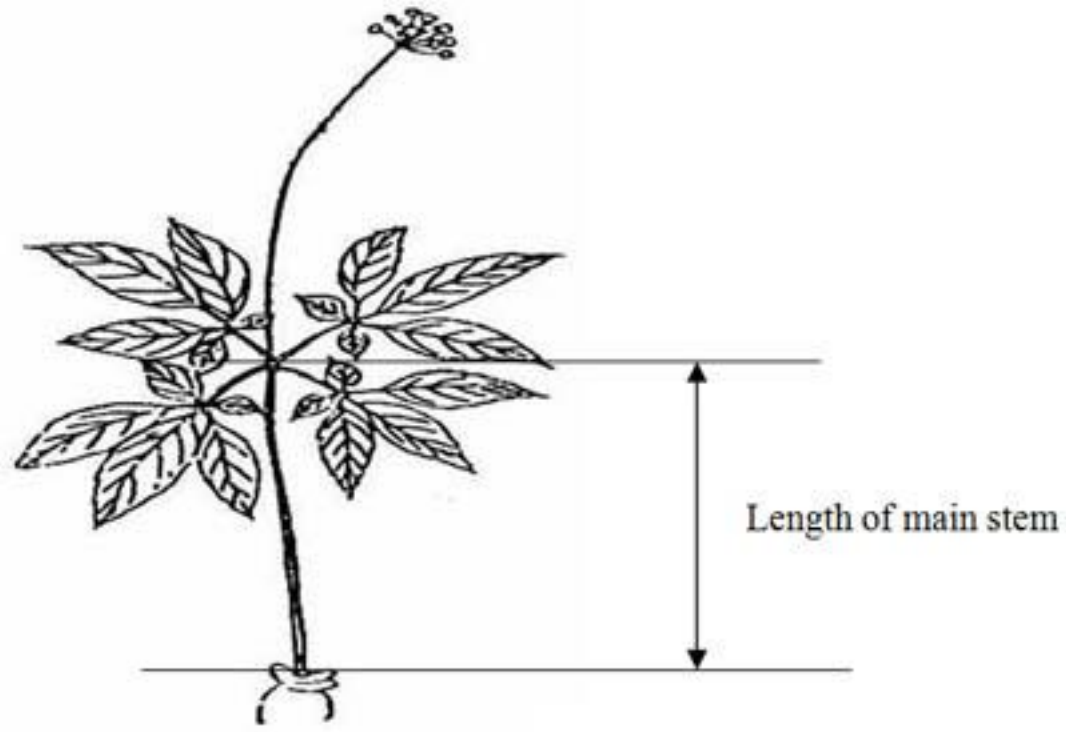
(a) Leaf: All observations on the leaf should be made on fully developed leaf

(b) Leaflet: All observations on the leaflet should be made on the central leaflet

(c) Main root: All observations on the main root should be made after harvest

8.2 Explanations for individual characteristics

Ad. 1: Plant: lenght of main stem



Ad. 3: Stem: rate of plant have more than two stems

3	5	7
few	medium	many

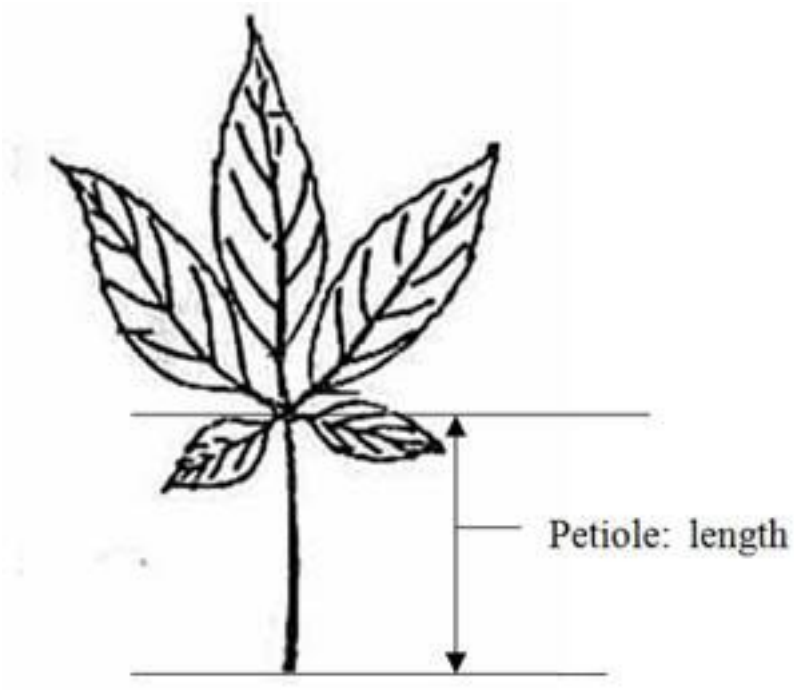
Ad. 4: Stem: intensity of anthocyanin coloration

3
weak

5
medium

7
strong

Ad. 7: Petiole: length



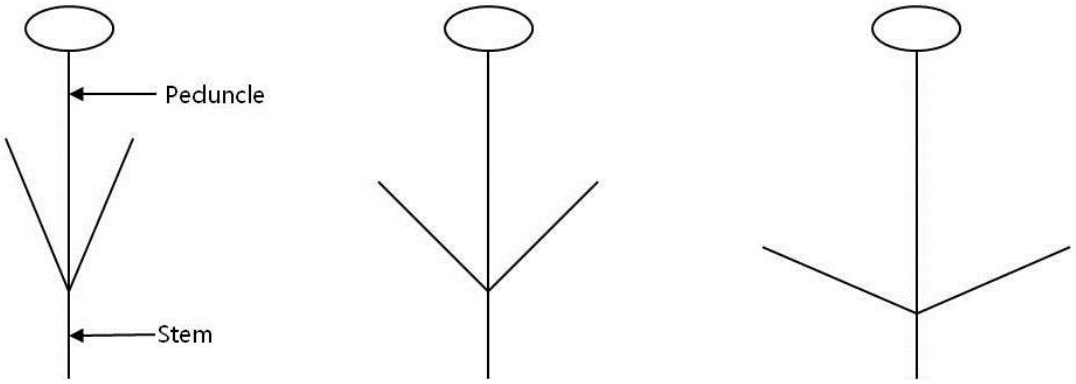
Ad. 8: Petiole : intensity of anthocyanin coloration

3
weak

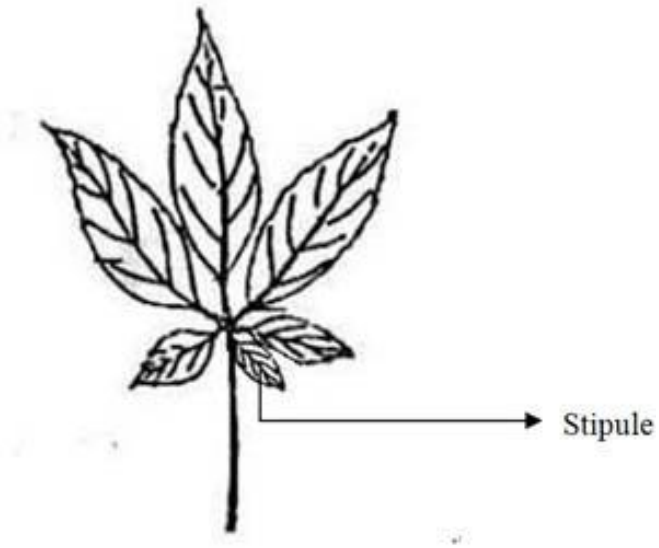
5
medium

7
strong

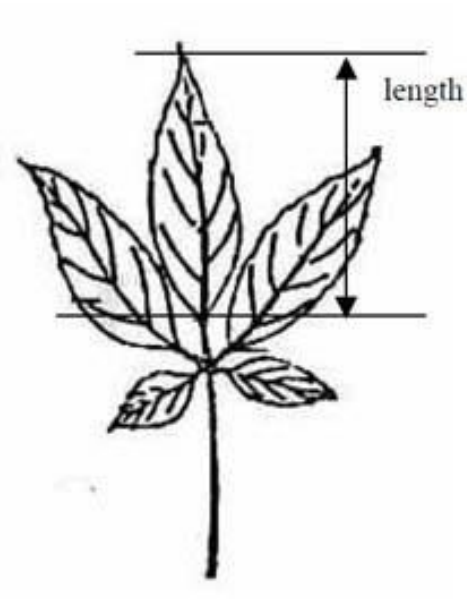
Ad. 9: Petiole: attitude in relation to peduncle



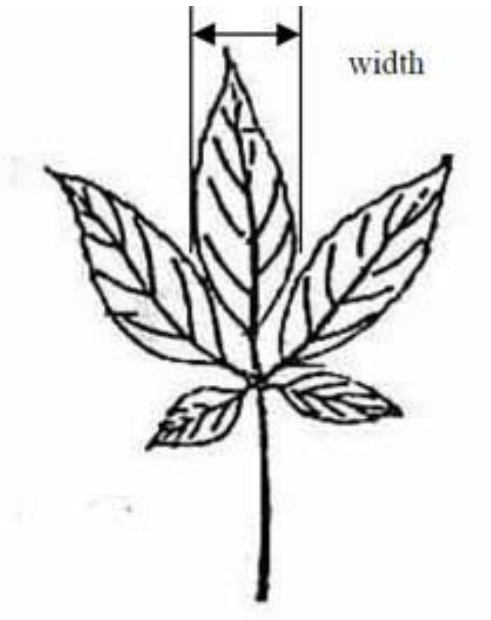
Ad. 11: Leaf: number of stipules



Ad. 14: Leaflet: length



Ad. 15: Leaflet: width



Ad. 16: Leaflet: shape

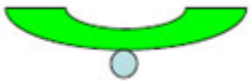
1
narrow elliptic

2
elliptic

3
oblong

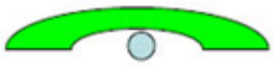
4
spatulate

Ad. 17: Leaflet: shape in cross section



1
concave

2
plane



3
convex

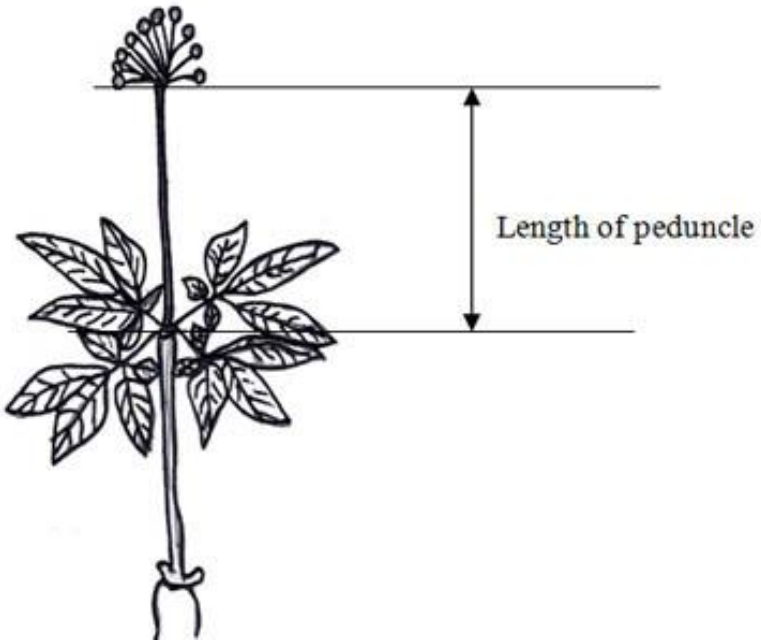
Ad. 19: Time of sprout

Time at which 50% of plants has sprouted up

Ad. 20: Time of flowering

The time at which 50% of the plants flower.

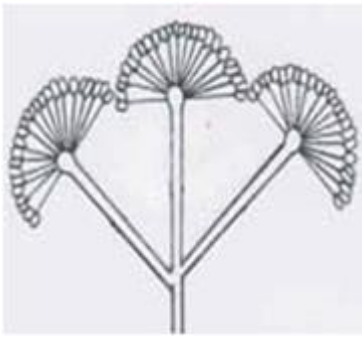
Ad. 21: Peduncle: length



Ad. 22: Inflorescence: type

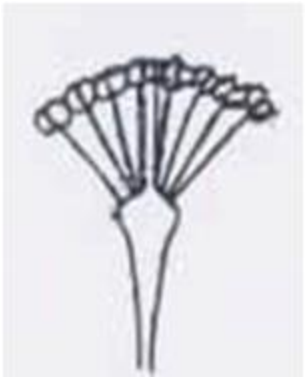
1
simple

2
intermediate



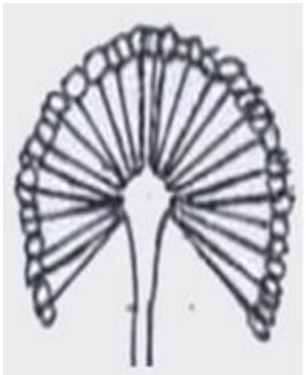
3
compound

Ad. 23: Umbel: attitude of lower florets(at berry maturity stage)



1
semi erect

2
horizontal



3
semi recurved

Ad. 24: Berry: time of maturity

Time at which 50% of plants have berries with mature color.

Ad. 25: Berry: color (at full maturity)

1
yellow

2
pink

3
orange

4
red

Time at which 50% of plants have berries with mature color.

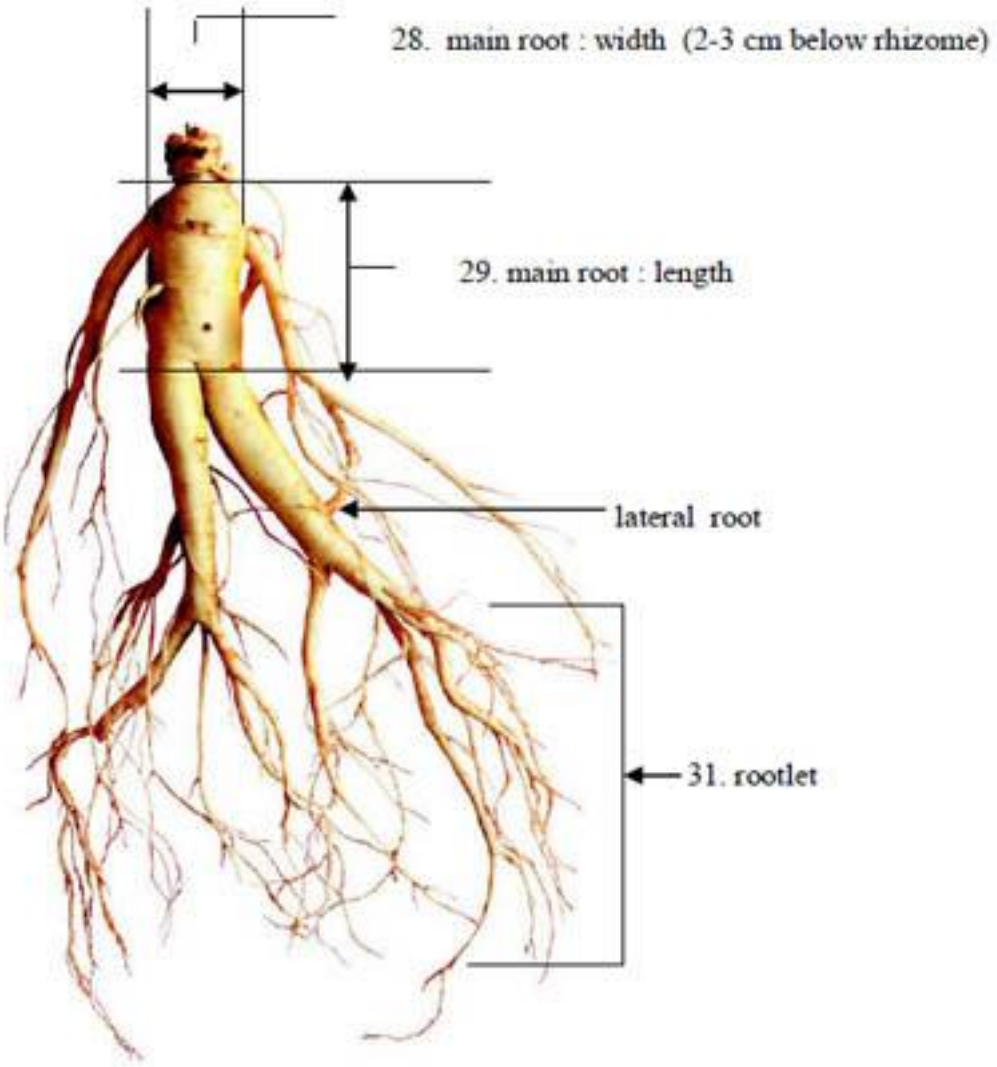
Ad. 26: Leaf: color at senescence

1
yellow

2
brown

3
red

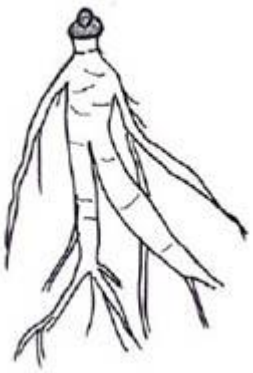
Ad. 27: Main root: width



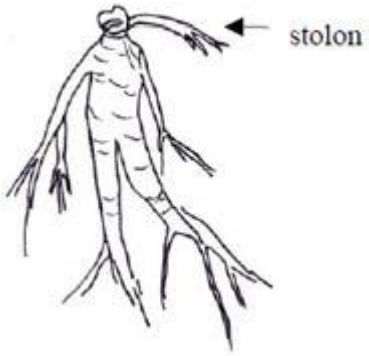
Ad. 30: Main root: rate of rootlet

1	2	3
few	medium	many

Ad. 31: Rhizome: presence of stolons



1
absent



9
present

8.3 *Life cycle of Ginseng*

Growing Year	General Description
1	One leaf with three leaflets
2	Two leaves, each leaf has 5 leaflets
3	Three leaves, each leaf has 5 leaflets Flower and rhizome differentiation (around 10 poor florets formed in each umbel)
4	Four leaves, each leaf has 5 leaflets Flower and rhizome differentiation (around 40 florets formed in each umbel)
5	Five leaves, each leaf has 5 leaflets Flower and rhizome differentiation (around 40 florets formed in each umbel)
6	Six leaves, each leaf has 5 leaflets Flower and rhizome differentiation (around 40 florets formed in each umbel)

9. Literature

Chun, S. K., Mook, S. K., Lee, S. S., Shin, D. Y., 1991: "The effect of light quantity and quality on the ginseng growth and quality" 5(1) p. 21

Han C.Y. 1977: "Study on the Ginseng Breeding for High Quality Variety," Report on the Contract Study of Ginseng, KT & G. 1-36

Korea Ginseng Corp.: "A Humanoid for a Human Being," p. 25, Korea Ginseng Corp.

Kyunggi Provincial RDA, 2002: "Cultural Techniques for High Quality Ginseng," Kyunggi Provincial RDA

Lee, J. H., Lee, J. C., Chun, S. K., Kim, Y. T., Ahn, S. B., 1982: "The effect of light intensity on the growth of ginseng" Korean Journal of Ginseng Science. 6(1) p. 18.

National Seed Management Office: "Test guideline of Ginseng for DUS Test," National Seed Management Office, Ministry of Agriculture and Forestry (MAF), Republic of Korea

Seeds and Seedlings Division: "Standard Description of Characteristics for the Identification of New Varieties of Ginseng and its Related Species," Ministry of Agriculture, Forestry and Fisheries (MAFF), Japan

W. Scott Persons: "American Ginseng Green Gold," Bright Mountain Books, Inc.

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	*Panax ginseng* C.A. Mey.
1.2	Common name	Ginseng

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)

(b) partially known cross [ ]

(please state known parent variety(ies))

(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 Other [ ]

(Please provide details)

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 (4)	**Stem: intensity of anthocyanin coloration**		
	absent or very weak	Chungsun, Gumpoong	1 [ ]
	weak	Cheonryang, Chunpoong, Kowon, Yunpoong	3 [ ]
	medium	Sunpoong, Sunun	5 [ ]
	strong	Gopoong, K-1	7 [ ]
5.2 (8)	**Petiole : intensity of anthocyanin coloration**		
	absent or very weak	Chungsun, Gumpoong	1 [ ]
	weak	Chunpoong	3 [ ]
	medium	Cheonryang	5 [ ]
	strong	Gopoong, K-1	7 [ ]
5.3 (24)	**Berry: time of maturity**		
	early	Gumpoong	3 [ ]
	medium	Yunpoong	5 [ ]
	late	Chunpoong	7 [ ]
5.4 (25)	**Berry: color (at full maturity)**		
	yellow	Gumpoong	1 [ ]
	pink	Cheonmyeong	2 [ ]
	orange	Chunpoong	3 [ ]
	red	K-1, Kowon, Sunpoong, Yunpoong	4 [ ]
5.5 (27)	**Main root: width**		
	thin		3 [ ]
	medium	Chunpoong	5 [ ]
	thick	Yunpoong	7 [ ]
5.6 (28)	**Main root: length**		
	short	Yunpoong	3 [ ]
	medium	Gopoong	5 [ ]
	long	Chunpoong, Gumpoong	7 [ ]

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			

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

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:

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 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]