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TG/166/4(proj.2)
ORIGINAL: English
DATE: 2012-05-02

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

OPIUM/SEED POPPY

UPOV Code: PAPAV_SOM

Papaver somniferum L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from Hungary

to be considered by the

Technical Working Party for Vegetables at its forty-sixth session,
to be held near the City of Venlo, Netherlands, from June 11 to 15, 2012

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Papaver somniferum L.	Opium/Seed Poppy	Œillette, Pavot	Mohn, Schlafmohn	Adormidera, Amapola

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

ASSOCIATED DOCUMENTS

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

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

TABLE OF CONTENTS PAGE

1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Papaver somniferum* L. excluding ornamental varieties.

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:

100 g 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 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.

3.3.2 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 8.1.

3.4 Test Design

Each test should be designed to result in a total of at least 200 plants, which should be divided between at least 2 replicates.

3.5 Additional Tests

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

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

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

4.1.2 Consistent Differences

The differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

4.1.3 Clear Differences

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

4.1.4 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 20 plants or parts 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 2% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 200 plants, 7 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) Seasonal type (characteristic 1)
(b) Petal: color (characteristic 11)
(c) Petal: color of blotch (characteristic 15)
(d) Capsule: shape of longitudinal section (characteristic 23)
(e) Capsule: dehiscence (characteristic 28)
(f) Seed: color (characteristic 32)
(g) Capsule: morphine content (characteristic 35)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 “Examining Distinctness”.

6. Introduction to the Table of Characteristics

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

6.2 States of Expression and Corresponding Notes

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

6.2.2 In the case of qualitative and pseudo-qualitative characteristics (see Chapter 6.3), all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

State	Note
small	3
medium	5
large	7

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

State	Note
very small	1
very small to small	2
small	3
small to medium	4
medium	5
medium to large	6
large	7
large to very large	8
very large	9

6.2.3 Further explanation of the presentation of states of expression and notes is provided in document TGP/7 “Development of Test Guidelines”.

6.3 Types of Expression

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

6.4 Example Varieties

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

6.5 Legend

(*)	Asterisked characteristic	– see Chapter 6.1.2
QL	Qualitative characteristic	– see Chapter 6.3
QN	Quantitative characteristic	– see Chapter 6.3
PQ	Pseudo-qualitative characteristic	– see Chapter 6.3
MG, MS, VG, VS		– see Chapter 4.1.5
(a)- (f)	See Explanations on the Table of Characteristics in Chapter 8.1.	
(+)	See Explanations on the Table of Characteristics in Chapter 8.2.	

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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.	**VG**	**Seasonal type**					
QL	**(a)**	overwintering/ frost resistant				Morwin, Zeno 2002	1
		annual/ not frost resistant				Agat, Botond, Major	2
2. **(*)**	**VG**	**Rosette leaf: hairiness**	**Feuille de la rosette: pilosité**	**Rosettenblatt: Behaarung**	**Hoja de la roseta: vellosidad**		
QL	**(a)**	absent	absente	fehlend	ausente	Korona, Morwin (w), Rubin, Zeno 2002 (w)	1
		present	présente	vorhanden	presente	Major, Opal, Sokol	9
3. **(*)**	**VG**	**Rosette leaf: white spots**	**Feuille de la rosette: taches blanches**	**Rosettenblatt: weiße Flecken**	**Hoja de la roseta: manchas blancas**		
QL	**(a)**	absent	absentes	fehlend	ausentes	Botond, Buddha, Major	1
		present	présentes	vorhanden	presentes	Kozmosz (w), Orel, Racek, Sokol	9
4.	**VG**	**Rosette leaf: hue of green color (upper side)**					
PQ	**(a)**	absent				Buddha, Zeno Morfex (w)	1
		yellowish					2
		bluish				Leila (w), Morwin (w), Zeno 2002 (w)	3
5.	**VG**	**Rosette leaf: waxiness**					
PQ	**(a)**	weak				Zeno Morfex (w)	3
		medium				Morwin (w)	5
		strong				Kozmosz (w)	7
6. **(+)**	**VG**	**Rosette leaf: depth of lobes**					
QN	**(a)**	absent or shallow				Korona, Mieszko, Morwin (w)	1
		medium				Aristo, Major, Opal, Zeno Morfex (w)	2
		deep				Agat, Kozmosz (w), Malsar	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
7. **(+)**	**VG/ MS**	**Main stem: length**	**Tige: longueur**	**Stengel: Länge**	**Tallo: longitud**		
QN	**(f)**	very short	très courte	sehr kurz	muy corto		1
		short	courte	kurz	corto	Minoán, Tebona	3
		medium	moyenne	mittel	medio	Postomi	5
		long	longue	lang	largo	Botond, Lazur, Major, Redy	7
		very long	très longue	sehr lang	muy largo		9
8. **(*)**	**VG**	**Stem: anthocyanin coloration (between capsule and upper stem leaf)**	**Tige: pigmentation anthocyanique (entre la capsule et la feuille la plus haute de la tige)**	**Stengel: Anthocyanfärbung (zwischen der Kapsel und dem obersten Stengelblatt)**	**Tallo: pigmentación antociánica (entre la cápsula y la hoja más alta del tallo)**		
QL	**(e)**	absent	absente	fehlend	ausente	Kozmosz (w), Major, Orel, Sokol	1
		present	présente	vorhanden	presente	Botond, Korona, Lazur, Malsar, Redy	9
9.	**VG**	**Stem: hairiness (as for 8)**	**Tige: pilosité (comme pour 6)**	**Stengel: Behaarung (wie unter 6)**	**Tallo: vellosidad (como para 6)**		
QN	**(d)**	absent or weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Botond, Lazur, Morwin (w), Zeno 2002 (w)	1
		medium	moyenne	mittel	media	Buddha, Postomi, Sokol	2
		strong	forte	stark	fuerte	Agat, Edel-Weiss, Edel-rot, Orel, Racek	3
10. **(*)** **(+)**	**VG**	**Flower bud: anthocyanin coloration**					
PQ	**(b)**	absent				Buddha	1
		ring around stem				Botond	2
		bottom part towards stem end				Minoán	3
11. **(*)**	**VG**	**Petal: color**	**Pétale: couleur**	**Blütenblatt: Farbe**	**Pétalo: color**		
PQ	**(d)**	white	blanc	weiß	blanco	Botond, Korona, Major, Sokol	1
		pink	rose	rosa	rosa	Agat, Albín, Rosemarie, Rubin	2
		red	rouge	rot	rojo	Edel-rot	3
		violet	violet	violett	violeta	Kozmosz (w), Leila (w), Zeno 2002 (w)	4

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
12.	**VG**	**Petal: intensity of color (white varieties excluded)**	**Pétale: intensité de la couleur (variétés blanches exclues)**	**Blütenblatt: Intensität der Farbe (ohne weiße Sorten)**	**Pétalo: intensidad del color (excluidas las variedades blancas)**		
QN	**(d)**	light	claire	hell	claro	Agat, Kozmosz (w)	3
		medium	moyenne	mittel	medio	Albín, Edel-rot, Leila (w), Rubin	5
		dark	foncée	dunkel	oscuro	Zeno 2002 (w)	7
13 (*)	**VG**	**Petal: blotch**	**Pétale: tache**	**Blütenblatt: Typ des Flecks**	**Pétalo: mancha**		
QL	**(d)**	absent	absente	fehlend	ausente	TMO1, Afyon 95, Ofis 96	1
		present	présente	vorhanden	presente	Botond, Major	9
14.	**VG**	**Petal: type of blotch**	**Pétale: type de tache**	**Blütenblatt: Typ des Flecks**	**Pétalo: tipo de mancha**		
(+)							
PQ	**(d)**	entire blotch	tache entière	massiver Fleck	en bloque	Botond, Malsar, Rosemarie, Sokol	1
		band	en bande	Streifen	en banda		2
		radial stripes	striée rayonnante	radiale Streifen	franjas radiales		3
15. (*)	**VG**	**Petal: color of blotch**	**Pétale: couleur de la tache**	**Blütenblatt: Farbe des Flecks**	**Pétalo: color de la mancha**		
PQ	**(d)**	white	blanche	weiß	blanco		1
		red	rouge	rot	rojo		2
		violet	violette	violett	violeta	Botond, Malsar, Kozmosz (w)	3
16.	**VG**	**Petal: intensity of violet color of blotch**	**Pétale: intensité de la couleur violette de la tache**	**Blütenblatt: Intensität der Violettfärbung des Fleckes**	**Pétalo: intensidad del color violeta de la mancha**		
QN	**(d)**	light	claire	gering	claro	Albakomp, Mieszko, Rubin	3
		medium	moyenne	mittel	medio	Lazur, Morwin (w)	5
		dark	foncée	dunkel	oscuro	Gerlach, Major, Leila (w), Zeno 2002 (w)	7
17.	**VG**	**Petal: top of blotch**					
(+)							
QN	**(d)**	below the widest point				Rubin	1
		at the widest point				Ametiszt, Florian, Zeno (w)	2
		above the widest point				Leila (w)	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
18. (*)	**VG**	**Petal: incisions**	**Pétale: incisions**	**Blütenblatt: Einschnitte**	**Pétalo: incisiones**		
QL	**(d)**	absent	absentes	fehlend	ausentes	Agat, Botond, Korona, Major	1
		present	présentes	vorhanden	presentes		9
19. (*) (+)	**VG**	**Petal: type of incisions**	**Pétale: type d'incisions**	**Blütenblatt: Typ der Einschnitte**	**Pétalo: tipo de incisiones**		
PQ	**(d)**	sinuate	sinueuses	gebuchtet	sinuosas		1
		serrate	dentelées	gesägt	serradas		2
		laciniate	lacérées	gelappt	laciniadas		3
20. (*)	**VG**	**Filament: color**	**Filament: couleur**	**Staubfaden: Farbe**	**Filamento: color**		
PQ	**(d)**	white	blanc	weiß	blanco	Botond, Korona	1
		light violet	violet clair	hell violett	violeta claro		2
		dark violet				Zeno (w), Zeno 2002 (w)	3
21.	**VG**	**Capsule: waxiness**	**Capsule: glaucescence**	**Kapsel: Bereifung**	**Cápsula: cerosidad**		
QN	**(e)**	absent or weak	absente ou très faible	fehlend oder sehr gering	ausente o muy débil	Gerlach, Opal	1
		medium	moyenne	mittel	media	Edel-Rot, Edel-Weiss	2
		strong	forte	stark	fuerte	Botond, Morwin (w), Kozmosz (w), Zeno 2002 (w)	3
22.	**VG**	**Capsule: anthocyanin coloration**					
QL	**(e)**	absent				Botond	1
		present				Minoán	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
23. (*) (+)	**VG**	**Capsule: shape of longitudinal section**	**Capsule: forme de la section longitudinale**	**Kapsel: Form des Längsschnitts**	**Cápsula: forma de la sección longitudinal**		
PQ	**(f)**	flattened	aplatie	abgeflacht	aplanada	Botond	1
		rectangular	rectangulaire	rechteckig	rectangular	Kék Gemona, Korona	2
		circular	circulaire	kreisförmig	circular	Postomi	3
		elliptic	elliptique	elliptisch	elíptica	Minoán	4
		conical				Major, Opal	5
24. (*) (+)	**VG**	**Capsule: shape of base**	**Capsule: forme de la base**	**Kapsel: Form der Basis**	**Cápsula: forma de la base**		
PQ	**(f)**	pointed	pointue	spitz	puntiaguda	Agat, Minoán	1
		flat	plate	flach	plana	Albín, Morwin (w), Opal, Sokol	2
		recessed	déprimée	eingesenkt	deprimida	Botond, Edel-Rot, Lazur, Korona, Redy	3
25. (+)	**VG/MS**	**Capsule: length (from base to stigmatic disc)**	**Capsule: longueur (de la base au disque stigmatique)**	**Kapsel: Länge (von der Basis zur stigmatischen Scheibe)**	**Cápsula: longitud (de la base al disco estigmático)**		
QN	**(f)**	very short	très courte	sehr kurz	muy corta		1
		short	courte	kurz	corta	Botond	3
		medium	moyenne	mittel	media	Bergam, Edel-Rot, Kék Duna, Lazur, Tebona	5
		long	longue	lang	larga	Ametiszt	7
		very long	très longue	sehr lang	muy larga		9
26.	**VG/MS**	**Capsule: diameter**	**Capsule: diamètre**	**Kapsel: Durchmesser**	**Cápsula: diámetro**		
QN	**(f)**	very small	très petit	sehr klein	muy pequeño		1
		small	petit	klein	pequeño	Minoán, Orfeus, Tebona	3
		medium	moyen	mittel	medio	Leila (w), Zeno Plus (w)	5
		large	large	groß	grande	Ametiszt	7
		very large	très large	sehr groß	muy grande		9
27.	**VG**	**Capsule: depth of ribbing**	**Capsule: côtes**	**Kapsel: Rippung**	**Cápsula: acostillado**		
QN	**(f)**	Absent or shallow	nulles ou très faibles	fehlend oder sehr gering	ausente o muy débil	Albakomp	1
		medium	moyennes	mittel	medio	Bergam, Lazur, Korona, Morwin (w)	2
		deep	fortes	stark	fuerte	Gerlach, Zeno Plus	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
28. (*) (+)	**VG**	**Capsule: dehiscence**	**Capsule: déhiscence**	**Kapsel: Dehiszenz**	**Cápsula: dehiscencia**		
QL	**(f)**	indehiscent	indéhiscente	indehiszent	indehiscente	Botond, Kék Gemona, Major	1
		dehiscent	déhiscente	dehiszent	dehiscente	Edel-Rot, Edel-weiss	2
29. (*) (+)	**VG**	**Stigmatic disc: shape**	**Disque stigmatique: forme**	**Stigmatische Scheibe: Form**	**Disco estigmático: forma**		
QL	**(f)**	vessel-like	en vaisseau	gefäßartig	en vasija	Edel-Rot, Redy	1
		dish-like	en assiette	tellerförmig	en plato	Albín, Botond, Mieszko, Orel, Racek	2
		flat	aplatie	flach	plano	Lazur, Morwin (w), Tebona, Zeno Morfex (w)	3
		conical	légèrement conique	leicht kegelförmig	ligeramente cónico		4
		pagoda-like	en pagode	pagodenförmig	en forma de pagoda	Rubin, Zeta	5
30.	**VG/ MS**	**Stigmatic disc: number of lobes**	**Disque stigmatique: nombre de lobes**	**Stigmatische Scheibe: Anzahl Lappen**	**Disco estigmático: número de lóbulos**		
QN	**(f)**	few	faible	gering	pocos	Alfa, Postomi, Tebona	3
		medium	moyen	mittel	medio	Buddha, Rosemarie, Kék Duna, Zeno 2002 (w)	5
		many	grand	groß	muchos	Sokol	7
31. (*) (+)	**VG**	**Stigmatic disc: apex of lobe**	**Disque stigmatique: sommet des lobes**	**Stigmatische Scheibe: Spitze der Lappen**	**Disco estigmático: ápice del lóbulo**		
PQ	**(f)**	pointed	aigu	spitz	puntiagudo	Madrigal	1
		rounded	arrondi	abgerundet	redondeado	Korona, Leila (w), Morwin (w)	2
		rectangular	rectangulaire	rechteckig	rectangular	Agat, Albín, Bergam, Major, Mieszko, Orfeus	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
32. **(*)**	**VG**	**Seed: color**	**Semence: couleur**	**Samen: Farbe**	**Semilla: color**		
PQ	**(f)**	white	blanche	weiß	blanca	Albín, Albakomp, Orel, Racek, Sokol	1
		ochre	ocre	ockerfarben	ocre		2
		brown	brune	braun	marrón	Redy	3
		pink	rose	rosa	rosa		4
		grey	grise	grau	gris	Edel-rot, Edel-weiss, Florian	5
		bluish	bleuâtre	bläulich	azulada	Botond, Rosemarie, Morwin (w), Opal	6
33.	**VG**	**Seed: intensity of bluish color**					
PQ	**(f)**	light				Minoán	1
		medium				Agat, Morwin (w), Opal	2
		dark				Botond, Buddha, Madrigal	3
34. **(+)**	**VG**	**Time of flowering**	**Époque de floraison**	**Zeitpunkt der Blüte**	**Epoca de la floración**		
QN	**(c)**	very early	très précoce	sehr früh	muy temprana	Morwin (w), Leila (w)	1
		early	précoce	früh	temprana	Zeno 2002 (w)	3
		medium	moyenne	mittel	media	Edel-Weiss, Korona	5
		late	tardive	spät	tardía	Botond, Lazur	7
		very late	très tardive	sehr spät	muy tardía	Ametiszt	9
35. **(+)**	**MG**	**Capsule: morphine content**	**Capsule: teneur en morphine**	**Kapsel: Morphingehalt**	**Cápsula: contenido de morfina**		
QN	**(f)**	very low	très faible	sehr gering	muy bajo	Mieszko, Zeno Morfex	1
		low	faible	gering	bajo	Albín, Kék Duna, Redy	3
		medium	moyenne	mittel	medio	Bergam, Major, Opal	5
		high	forte	stark	alto	Postomi	7
		very high	très forte	sehr stark	muy alto	Botond, Buddha	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
36. **(+)**	**MG**	**Capsule: codeine content**	**Capsule: teneur en codéine**	**Kapsel: Kodeingehalt**	**Cápsula: contenido de codeína**		
QN	**(f)**	very low	très faible	sehr gering	muy bajo	Rubin, Zeno	1
		low	faible	gering	bajo	Bergam, Botond, Maratón	3
		medium	moyenne	mittel	medio	Tebona	5
		high	forte	stark	alto		7
		very high	très forte	sehr stark	muy alto		9
37. **(+)**	**MG**	**Capsule: thebaine content**	**Capsule: teneur en thébaïne**	**Kapsel: Thebaingehalt**	**Cápsula: contenido de tebaína**		
QN	**(f)**	none or very low	nulle ou très faible	fehlend oder sehr gering	ausente o muy bajo	Leila (w), Zeno Morfex (w)	1
		low	faible	gering	bajo	Maratón, Kozmosz (w)	3
		medium	moyenne	mittel	medio	Kék Gemona, Lazur, Tebona	5
		high	forte	stark	alto		7
		very high	très forte	sehr stark	muy alto		9
38. **(+)**	**MG**	**Capsule: narcotine content**	**Capsule: teneur en narcotine**	**Kapsel: Narkotingehalt**	**Cápsula: contenido de narcotina**		
QN	**(f)**	none or very low	nulle ou très faible	fehlend oder sehr gering	ausente o muy bajo	Maratón, Opal	1
		low	faible	gering	bajo	Kozmosz (w), Tebona	3
		medium	moyenne	mittel	medio		5
		high	forte	stark	alto	Kék Gemona	7
		very high	très forte	sehr stark	muy alto	Korona	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) 10-12 true leaves stage (prior to internode elongation);
(b) The pedicel is in hook stage;
(c) Time of flowering (when the first flower opens on the main stem at 10 % of the plants);
(d) Full blossom;
(e) 10-14 days after the petals drop down on main stem;
(f) Mature, dry capsule of main stem.

8.2 Explanations for individual characteristics

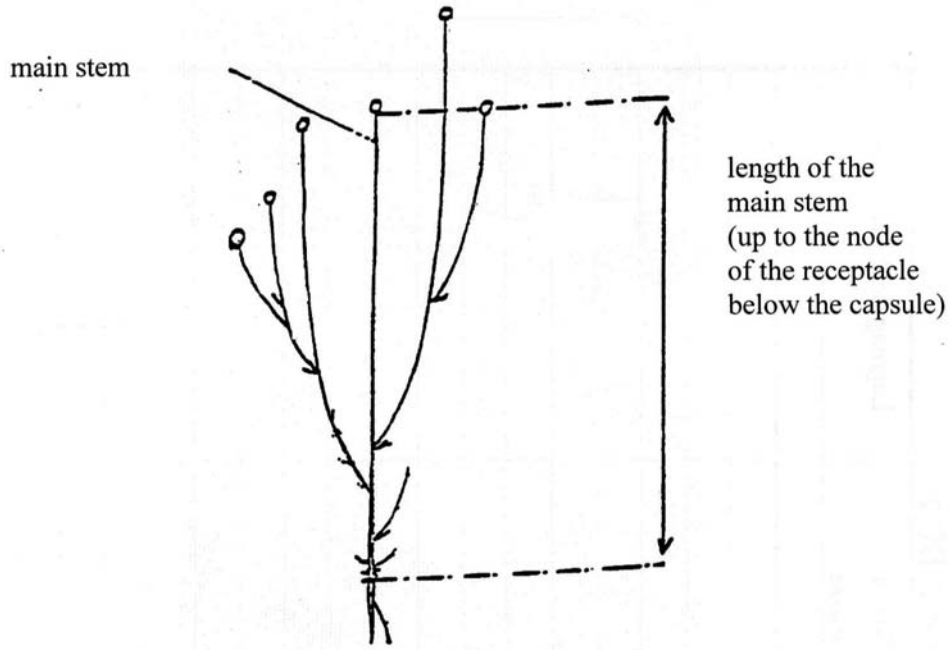
Ad. 6: Rosette leaf: depth of lobes

1
absent or shallow

2
medium

3
deep

Ad. 7: Main stem: length



Ad. 10: Flower bud: anthocyanin coloration

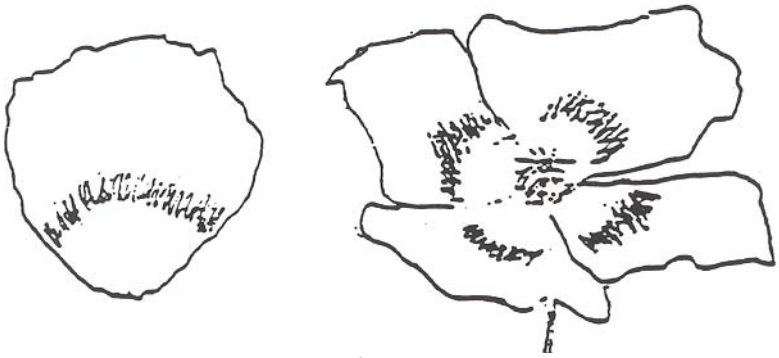
1
absent

2
ring around stem

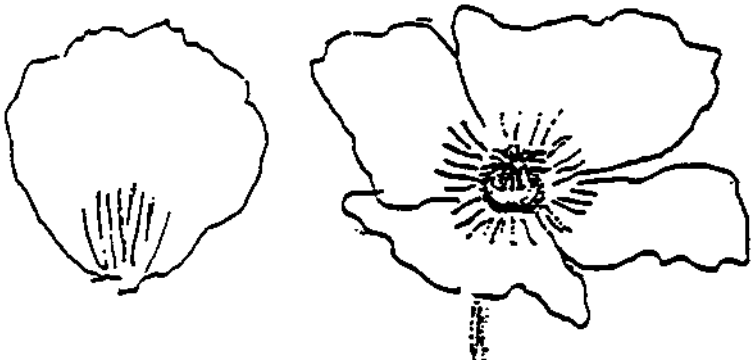
3
bottom part towards stem end

Ad.14: Petal: type of blotch

1
entire blotch



2
band



3
radial stripes

Ad. 17: Petal: top of blotch

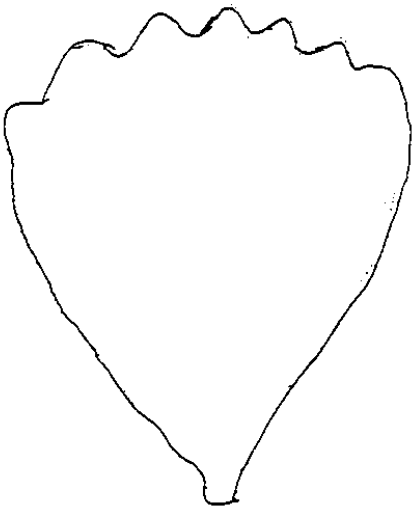
1
below the widest point

2
at the widest point

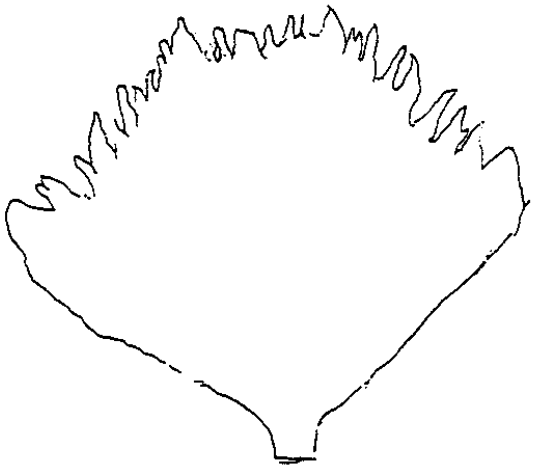
3
above the widest point

The measurement has to be at the widest point of petal.

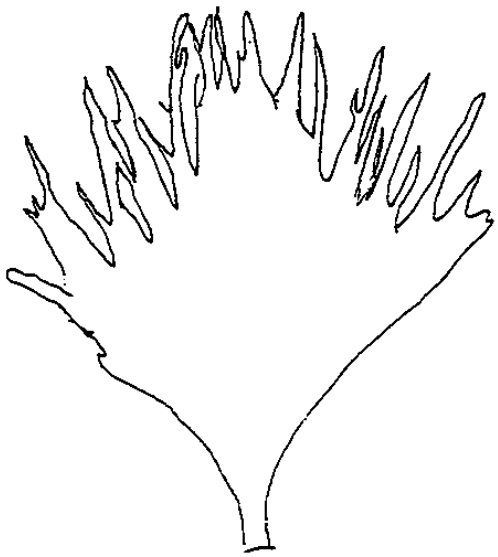
Ad. 19: Petal: type of incisions



1
sinuate



2
serrate



3
laciniate

Ad. 23: Capsule: shape of longitudinal section

1
flattened

2
rectangular

3
circular

4
elliptic

4
elliptic

4
elliptic

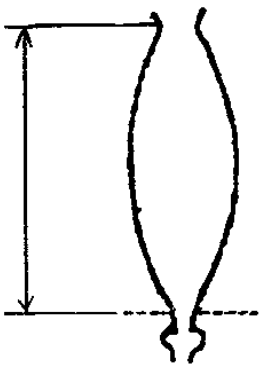
5
conical

5
conical

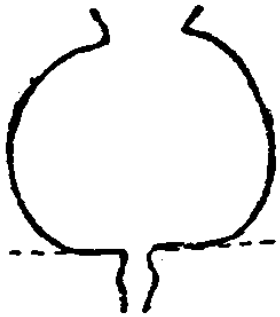
5
conical

Ad. 24: Capsule: shape of base
Ad. 25: Capsule: length (from base to stigmatic disc)

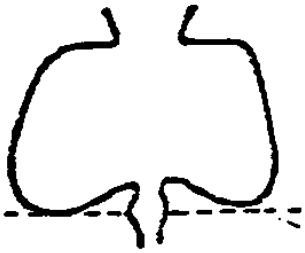
length



1
pointed



2
flat

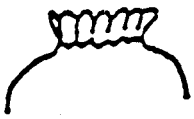


3
recessed

Ad. 28: Capsule: dehiscence

For the observation of dehiscence the capsule should be held upside-down and shaken. If seeds do not fall out, the capsule is indehiscent (1). If seeds fall out, the capsule is dehiscent (2).

Ad. 29: Stigmatic disc: shape



1
vessel-like

2
dish-like

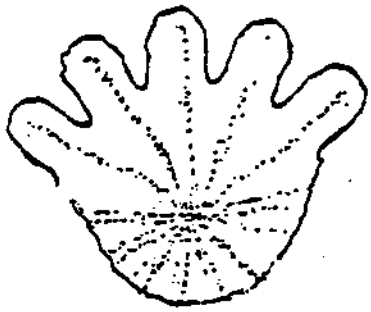
3
flat

4
conical

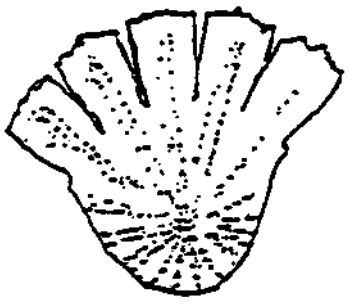
5
pagoda-like

Ad. 31: Stigmatic disc: apex of lobe

1
pointed



2
rounded



3
rectangular

Ads. 35-38: Capsule: determination of alkaloid contents: morphine, codeine, thebaine and narcotine

Determination of Morphine, Codeine, Thebaine, Papaverine and Narcotine content in poppy capsule HPLC method, MS detection

1. Scope

Determination of Morphine, Codeine, Thebaine, Papaverine and Noscapine content in poppy capsule for qualification purposes.

Limit Of Detection (LOD): 10 mg/kg/component
Limit Of Quantitation (LOQ): 50 mg/kg/component

2. Principle

The sample is extracted with methanol containing 1 ml of cc. hydrochloric acid/litre. The alkaloid content of the extract is determined by HPLC-MS system using RP C18 column. External standards are used for qualitative and quantitative determination.

3. Procedure

3.1. *Sample preparation*

The receipt sample is weighted and dried to air-dry condition. The stalk, the crop and the seeds are separated. The stalk is grinded using 0,5 mm sieve.

3.2. *Extraction and clean-up*

Weigh 0,2 g of grinded sample and add 100 ml methanol-HCl solution (1 ml cc. HCl/litre methanol. Keep in ultrasonic bath 30 minutes. Filter and this solution inject to the HPLC column.

3.3. *HPLC measurement*

The determination of the alkaloid content is performed by MS detection (SIM mode) after separation using reversed phase C18 column.

HPLC conditions

The HPLC conditions are advised listed below, but any other conditions can be used if those give suitable results.

Chromatographic column: NUCLEODUR C-18 Gravity 150*4.6mm*5µm or equivalents.

Mobile phase

A eluent: HPLC grade methanol
B eluent: 2 g Ammonium-acetate/litre HPLC grade water
Gradient: 0-4 min. 70% B
4-14 min. 10% B-ig linear gradient
14-20 min. 10% B
Post time: 5 min.

Flow rate

0.9 cm3/min.

Detector

MS SIM APCI: 2-20 perc: 286.0 AMU Positive
300.0 AMU Positive
312.0 AMU Positive
340.0 AMU Positive
414.0 AMU Positive

Injected volume: 2 µl

For qualitative and quantitative determination used analytical grade standard solutions in HCL-methanol (1 ml cc. HCl/litre methanol) solvent. Calibrate according to ESTD method.

4. Expression of the results

The results are expressed in mg/kg referred to air-dry material.

9. Literature

Bernáth, J., Dános, B., Veres, T., Tétényi, P., 1988: "Variation and alkaloid production in poppy ecotypes: Responses to different environments." Biochemical Systematics and Ecology 16 (2): pp. 171-178

Bernáth, J., 1998: "Poppy, The Genus *Papaver*", Harwood Academic Publishers

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Günther, K.F., 1975: "Beiträge zur Morphologie der Papaveraceae." Flora 164: pp. 415-418.

Kodaira, H., and Spector, S., 1988: "Transformation of thebaine to orpavine, codeine and morphine by rat liver, kidney and brain microsomes." Proc. Natl. Acad. Sci. USA 85: pp.1267-1271

Hammer, K., 1981: "Probleme der Klassifikation von Papaver somniferum," Kulturpflanze 29: pp. 287-296.

Schijfsma, L., Hoesbergen, M. and Nijdam, F.E., 1960: "A Study of the Colour and Other Characters of the Seed in Some Varieties of Oil Seed Poppy." Euphytica 9: pp. 127-140.

ST/SOA/SER. Y./33 UN Method No. 33, Dec. 16, 1977: "Determination of Phenanthreene Alkaloids in *Papaver Somniferum* Capsules and *Papaver Bracteatum* Plant Tissue By High Performance Liquid Chromatography."

Tétényi, P., 1997: "Opium Poppy (*Papaver somniferum*) Botany and Horticulture." Horticultural Reviews, 19: pp. 373-408

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	*Papaver somniferum* L.
1.2 Common name	Opium/Seed Poppy

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	
Breeder (if different from applicant)	

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

[#]4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]
(please state parent varieties)

(……..……..…) x (……..……..…)
female parent male parent

(b) partially known cross [ ]
(please state known parent variety(ies))

(……..……..…) x (……..……..…)
female parent male parent

(c) unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

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

4.1.4 Other [ ]
(please provide details)

4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties

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

[#] 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:

5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

	Characteristics	Example Varieties	Note
5.1 (1)	**Seasonal type**		
	overwintering / frost resistant	Morwin, Zeno 2000	1[ ]
	annual / not frost resistant	Agat, Botond, Major	2[ ]
5.2 (11)	**Petal: color**		
	white	Botond, Korona, Major, Sokol	1[ ]
	pink	Agat, Albín, Rosemarie, Rubin	2[ ]
	red	Edel-rot	3[ ]
	violet	Kozmosz (w), Leila (w), Zeno 2002 (w)	4[ ]
5.3 (15)	**Petal: color of blotch**		
	white		1[ ]
	red		2[ ]
	violet	Botond, Malsar, Kozmosz (w)	3[ ]
5.4 (23)	**Capsule: shape of longitudinal section**		
	flattened	Botond	1[ ]
	rectangular	Kék Gemona, Korona	2[ ]
	circular	Postomi	3[ ]
	elliptic	Minoán	4[ ]
	conical	Major, Opal	5[ ]
5.5 (28)	**Capsule: dehiscence**		
	indehiscent	Botond, Kék Gemona, Major	1[ ]
	dehiscent	Edel-Rot, Edel-weiss	2[ ]

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

	Characteristics	Example Varieties	Note
5.6 (32)	**Seed: color**		
	white	Albín, Albakomp, Orel, Racek, Sokol	1[ ]
	ochre		2[ ]
	brown	Redy	3[ ]
	pink		4[ ]
	grey	Edel-rot, Edel-weiss, Florian	5[ ]
	bluish	Botond, Rosemarie, Morwin (w), Opal	6[ ]
5.7 (35)	**Capsule: morphine content**		
	very low	Mieszko, Zeno Morfex	1[ ]
	low	Albín, Kék Duna, Redy	3[ ]
	medium	Bergam, Major, Opal	5[ ]
	high	Postomi	7[ ]
	very high	Botond, Buddha	9[ ]

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

6. Similar varieties and differences from these varieties

Please use the following table and box for comments to provide information on how your candidate variety differs from the variety (or varieties) which, to the best of your knowledge, is (or are) most similar. This information may help the examination authority to conduct its examination of distinctness in a more efficient way.

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example			

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

7.1 Resistance to pests and diseases

7.2 Special conditions for the examination of the variety

(a) Growing season:

– spring [ ]
– summer [ ]
– autumn [ ]
– winter [ ]

(b) Other conditions

8. Authorization for release

(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

If the answer to (b) is yes, please attach a copy of the authorization.

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

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

9. Information on plant material to be examined or submitted for examination.

9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.

9.2 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:

(a) Microorganisms (e.g. virus, bacteria, phytoplasma) Yes [ ] No [ ]

(b) Chemical treatment (e.g. growth retardant, pesticide) Yes [ ] No [ ]

(c) Tissue culture Yes [ ] No [ ]

(d) Other factors Yes [ ] No [ ]

Please provide details for where you have indicated “yes”.

……

10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:

Applicant’s name

Signature Date

[Annex follows]

Comments made by Leading Expert on the Comments of the Subgroup

Ch.1 Seasonal type
We don't agree with the proposal to put this character in TQ. The frost resistance (and e.g. intensity of initial growing and results of molecular biology) is a significant attribute to make determination between autumn and spring varieties. We kept "w" at winter varieties.

Ch.15. Petal: color of blotch
There is a variety "Danish Flag" for state 1, but it is heterogeneous and not registered variety. There isn't any example variety for state 2.

Ch.18. Petal: incisions
The example variety for state 9 is withdrawn.

Ch.20. Filament: color
There was a candidate variety for state 2, but it was withdrawn.

Ch.25. Capsule: length (from base to stigmatic disc)
Ch.26 Capsule: diameter
Ch.34. Time of flowering
Ametiszt will be deleted as example variety, because of withdrawal.

36. Capsule: codeine content
37.Capsule: thebaine content
38.Capsule: narcotine content

The aim of breeding is the different alkaloid contents. It happens sometimes that we can make differences between varieties only the basis of the codeine, thebaine or narcotine content. We propose to keep the characters 36, 37, 38.

[End of Annex and of document]