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TG/197/1

INTERNATIONAL UNION
FOR THE PROTECTION
OF NEW VARIETIES OF
PLANTS

UNION INTERNATIONALE
POUR LA PROTECTION
DES obtentions
VÉGÉTALES

INTERNATIONALER
VERBAND ZUM SCHUTZ
VON PFLANZEN -
ZÜCHTUNGEN

UNIÓN INTERNACIONAL
PARA LA PROTECCIÓN
DE LAS OBTENCIÓNES
VEGETALES

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

EUSTOMA

(LISIANTHUS)

(*Eustoma grandiflorum* (Raf.) Shinners)

GENEVA
2002

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These Guidelines should be read in conjunction with document TG/1/2, which contains explanatory notes on the general principles on which the Guidelines have been established.

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I. SubjectoftheseGuidelines

These Test Guidelines apply to all varieties of *Eustoma grandiflorum* (Raf.) Shinn ers of the family Gentianaceae.

II. MaterialRequired

1. The competent authorities decide when, where and in what quantity and quality the plant material/seed required for testing the variety 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 are complied with. As a minimum, the following quantity of plant material is recommended:

seed propagated varieties: 1000 seeds
vegetatively propagated varieties: 40 plantlets .

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

3. The plant material must not have undergone any treatment unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

III. ConductofTests

1. A test should normally be conducted in a single growing cycle. If distinctness and/or uniformity cannot be sufficiently examined in a single growing cycle, the test should be extended for a second growing cycle.

2. The tests should normally be conducted at one place. If any important characteristics of the variety cannot be seen at that place, the variety may be tested at an additional place.

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

Seed propagated varieties:

Seed sowing: Time: January to February (in Northern Hemisphere) .
Temperature: 15°C minimum .
Sowing medium: well-drained, moisture holding, fertile, pH 6.0 to 6.5 .
Use cell tray (2.5x2.5x4.5cm) .
No soil covering .
Bench irrigation .

Transplantingofseedlings : Plantstage: 4trueleaves .
Time: MidMar chtoMay(inNorthernHemisphere) .

Soil: well-drained and moisture holding , fertile, rich in organicmaterial,pH 6.0to6.5 .

Plantingdensity: 15 ×15cm .

Temperature: Day: +20to25 °C.
Night: +13to 15°C.

Vegetativelypropagatedvarieties:

Planting: MidMarch (inNorthernHemisphere) ,temperature18 °C.

Plantingdensity:20 ×20 cm.

Plantspinchedafter3pairsofleaves.

4. The size of the plots should be such that plants or parts of plants may be removed for measurement and counting without prejudice to the observations which must be made up to the end of the growing period. For vegetatively propagated varieties, each test should be designed to result in a total of, at least 40 plants, which should be divided between two or more replicates. For seed propagated varieties, each test should be designed to result in a total of, at least 60 plants, which should be divided between two or more replicates. Separate plots for observation and measuring can only be used if they have been subject to similar environmental conditions.

5. Additional tests for special purposes may be established.

IV. MethodsandObservations

1. All observations should be made on 40 plants or parts taken from each of 40 plants.

2. For the assessment of uniformity of vegetatively propagated 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 40 plants, the maximum number of off-types allowed would be 2. For the assessment of uniformity of seed propagated varieties, the recommendations in the General Introduction for cross-pollinated or hybrid varieties should be followed, as appropriate.

3. All observations should be made on flowering plants.

4. The length of the internode and green color of the stem should be observed on the fourth internode from the top.

5. All observations on the leaf should be made on the third leaf from the top. For determining the color of the leaf and the stem the bloom should be removed.

6. Allobservations on the flower and the pedicel should be made on the second flower to open. Color observation on the petal should be made on its inner side.

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

V. Grouping of Varieties

1. The collection of varieties to be grown should be divided into groups to facilitate the assessment of distinctness. Characteristics which are suitable for grouping purposes are those which are known from experience not to vary, or to vary only slightly, within a variety. Their various states of expression should be fairly evenly distributed throughout the collection.

2. It is recommended that the competent authorities use the following characteristics for grouping varieties:

- (a) Flower: type (characteristic 15)
- (b) Petal: number of colors (characteristic 24)
- (c) One-colored varieties only: Petal: color of upper side (characteristic 25) with the following groups:
 - Gr. 1:white
 - Gr. 2:yellow
 - Gr. 3:lightgreen
 - Gr. 4:pink
 - Gr. 5:orange
 - Gr. 6:red
 - Gr. 7:purple
 - Gr. 8:violet
- (d) Bi-colored varieties only: Petal: main color of upper side (characteristic 26) with the following groups:
 - Gr. 1:white
 - Gr. 2:yellow
 - Gr. 3:lightgreen
 - Gr. 4:pink
 - Gr. 5:orange
 - Gr. 6:red
 - Gr. 7:purple
 - Gr. 8:violet

- (e) Bi-colored varieties only : Petal: secondary color of upper side (characteristic 27) with the following groups:
 - Gr.1:white
 - Gr.2:yellow
 - Gr.3:lightgreen
 - Gr.4:pink
 - Gr.5:orange
 - Gr. 6:red
 - Gr.7:purple
 - Gr. 8:violet
- (f) Petal: color of base (characteristic 31)
- (g) Time of beginning of flowering (characteristic 3 6)

VI. Characteristics and Symbols

1. To assess distinctness, uniformity and stability, the characteristics and their states as given in the Table of Characteristics should be used.
2. Notes (numbers), for the purposes of electronic data processing, are given opposite the states of expression for each characteristic.
3. Legend
 - (*) Characteristics that should be used on all varieties in every growing period over which examinations are made and always be included in the variety descriptions, except where the state of expression of a preceding characteristic or regional environmental conditions render this impossible.
 - (+) See Explanations on the Table of Characteristics in Chapter VIII.

VII. TableofCharacteristics/Tableaudescaractères/Merkmalstabelle/Tabladecaracteres

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejempl	Note/ Nota
1. Plant: height (*)	Plante:hauteur	Pflanze:Höhe	Planta:altura		
short	courte	niedrig	baja	WhiteCoronet	3
medium	moyenne	mittel	media	DeepPurple ,MomoSen	5
tall	haute	hoch	alta	YukinoMine	7
2. Stem: thickness	Tige:épaisseur	Stiel:Dicke	Tallo:grosor		
thin	fine	dünn	delgado	WhiteCoronet	3
medium	moyenne	mittel	medio	MomoSen	5
thick	épaisse	dick	grueso	YukinoMine	7
3. Stem:number of nodes	Tige:nombre de nœuds	Stiel:AnzahlKnoten	Tallo:número de nudos		
few	petit	gering	bajo	WhiteCoronet	3
medium	moyen	mittel	medio	MomoSen	5
many	grand	groß	elevado	PurpleRobin	7
4. Stem:length	Tige:longueur	Stiel:Länge	Tallo:longitud		
short	court	kurz	corto	WhiteCoronet	3
medium	moyen	mittel	medio	MomoSen	5
long	long	lang	largo		7
5. Stem:intensity of green color	Tige:intensité de la couleur verte	Stiel:Intensität der Grünfärbung	Tallo:intensidad del color verde		
light	clair	hell	claro		3
medium	moyen	mittel	medio	YukinoMine	5
dark	foncé	dunkel	oscuro	FukuShihai	7

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplares	Note/ Nota
6. Stem:numberof branchesonmain stem	Tige:nombrede branchessurlatige principale	Stiel:Anzahl Seitentriebeam Hauptstiel	Tallo:númerode ramificaciónesdel talloprincipal		
few	petit	gering	pocas	WhiteCoronet	3
medium	moyen	mittel	medias	MomoSen	5
many	grand	groß	muchas	PurpleRobin	7
7. Stem:positionof branching	Tige:positiondel ramification	Stiel:Positionder Verzweigung	Tallo:posicióndel ramificación		
upperpartonly	seulementsurla partiesupérieure	nuramoberenTeil	sóloenlaparte superior	PurpleMoon	1
upperand middle partonly	seulementsurles partiessupéri eureet médiane	nuramoberenundam mittlerenTeil	sóloenlaparte superiorcentral	MomoSen	2
wholestem	surtoutlatige	amganzenStiel	entodoeltallo		3
8. Leaf:attitude relativetostem (+)	Feuille:portpar rapportalatige	Blatt:Stellu ngim VerhältniszumStiel	Hoja:porteen relaciónconeltallo		
semi-erect	demi-dressé	halbaufrecht	semierecto	WhiteCoronet	1
horizontal	horizontal	waagerecht	horizontal	MomoSen	2
semi-drooping	demi-retombant	halbhängend	semicolgante		3
9. Leaf:length (*) (+)	Feuille:longueur	Blatt:Länge	Hoja:longitud		
short	courte	kurz	corta	WhiteCoronet	3
medium	moyenne	mittel	media	Momo Sen	5
long	longue	lang	Larga		7
10. Leaf:width (*) (+)	Feuille:largeur	Blatt:Breite	Hoja:anchura		
narrow	étroite	schmal	estrecha	WhiteCoronet	3
medium	moyenne	mittel	media	MomoSen	5
broad	large	breit	ancha		7

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplares	Note/ Nota
11. Leaf:shape (*) (+)	Feuille:forme	Blatt:Form	Hoja:forma		
lanceolate	lancéolée	lanzettlich	lanceolada		1
ovate	ovale	eiförmig	oval	MomoSen	2
broadovate	ovalelarge	breiteiförmig	ovalancha		3
12. Leaf:bloom (*)	Feuille:pruine	Blatt:Bereifung	Hoja:pruina		
absentorvery weaklyexpressed	nulleoutrès faiblementexprimée	fehlendodersehr schwachausgeprägt	ausenteomuy débilmenteexpresada		1
weaklyexpressed	faiblementexprimée	schwachausgeprägt	débilmenteexpresada		2
stronglyexpressed	fortementexprimée	starkausgeprägt	fueramente expresada		3
13. Leaf: intensityof green color of upper side (without bloom)	Feuille:intensité de la couleur verte de la face supérieure (sans la pruine)	Blatt:Intensität der Grünfärbung der Oberseite(ohne Bereifung)	Hoja:intensidad del color verde de la haz (sin pruina)		
light	claire	hell	claro		3
medium	moyenne	mittel	medio	MomoSen	5
dark	foncée	dunkel	oscuro		7
14. Flowerbuds: number (*)	Boutons floraux: nombre	Blütenknospen: Anzahl	Yemas florales: número		
few	petit	gering	bajo		3
medium	moyen	mittel	medio		5
many	grand	groß	alto	BlueCoronet	7
15. Flower:type (*)	Fleur:type	Blüte:Typ	Flor:tipo		
single	simple	einfach	simple		1
double	double	gefüllt	doble		2

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplares	Note/ Nota
16. Varietieswith doubleflowers only: Flower: numberofpetals <small>(*)</small>	Seulementles variétésàfleurs doubles:Fleur: nombredepétales	NurSort enmit gefülltenBlüten: Blüte:Anzahl Blütenblätter	Sólopara variedadescon floresdobles :Flor: númerodepétalos		
few	petit	gering	bajo		3
medium	moyen	mittel	medio	KingofBlueFlash	5
many	grand	groß	alto	DeepPurple	7
17. Flower:diameter <small>(*)</small>	Fleur:diamètre	Blüte:Durchmesser	Flor:diámetro		
small	petit	gering	pequeño		3
medium	moyen	mittel	medio	MomoSen	5
large	grand	groß	grande	DeepPurple	7
18. Flower:shape <small>(*) (+)</small>	Fleur:forme	Blüte:Form	Flor:forma		
campanulate	campanulée	glockenförmig	acampanada	MomoSen	1
narrowfunnel - shaped	enentonnoirétroit	schmaltrichterförmig	enformadeembudo estrecho	PurpleComet	2
wide funnel-shaped	enentonnoirlarge	breittrichterförmig	enformadeembudo ancho	FukuShihai	3
saucer-shaped	ensoucoupe	tellerförmig	enformadeplato	DeepPurple	4
19. Petal:length <small>(*)</small>	Pétale:longueur	Blütenblatt:Länge	Pétalo:longitud		
short	court	kurz	corto		3
medium	moyen	mittel	medio	MomoSen	5
long	long	lang	largo	YukinoMine	7
20. Petal:width <small>(*)</small>	Pétale:largeur	Blütenblatt:Breite	Pétalo:anchura		
narrow	étroit	schmal	estrecho	DeepPurple	3
medium	moyen	mittel	medio	YukinoMine	5
broad	large	breit	ancho		7

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejempl	Note/ Nota
21. Petal:shapeoftop margin (*) (+)	Pétale:formedu bordausomm et	Blütenblatt:Form desoberenRandes	Pétalo:formadel bordesuperior		
retuse	échancrée	eingedrückt	retusa		1
flat	aplatie	flach	plana		2
rounded	arrondie	abgerundet	redondeada		3
acute	aigüe	spitz	aguda		4
22. Petal:undulation ofmargin (*)	Pétale:ondulation dubord	Blütenblatt: Randwellung	Pétalo:ondulación delborde		
weak	faible	gering	débil	MomoSen	3
medium	moyenne	mittel	media	YukinoMine	5
strong	forte	stark	fuerte	DeepPurple	7
23. Petal:fringingof margin (*)	Pétale:fran gedu bord	Blütenblatt: Fransungdes Randes	Pétalo:flecosdel borde		
absentorvery weaklyexpressed	nulleoutrès faiblementexprimée	fehlendodersehr schwachausgeprägt	ausentesomuy débilmente expresados		1
weaklyexpressed	faiblementexprimée	schwachausgeprägt	débilmente expresados		2
stronglyexpressed	fortementexprimée	starkausgeprägt	fueramente expresados		3
24. Petal: numberof colors (*)	Pétale:nombred de couleurs	Blütenblatt:Anzahl Farben	Pétalo:númerode colores		
one colored	unicolore	einfarbig	unicolor		1
bi-colored	bicolore	zweifarbig	bicolor		2
25. <u>One-colored varietiesonly :</u> Petal:colorof upperside (*)	<u>Seulementles variétésunicolores :</u> Pétale:couleurdelafacesupérieure	<u>Nureinfarbige Sorten:</u> Blütenblatt: Farbe derOberseite	<u>Sólopara variedades unicoloras:</u> Pétalo: colordelacara externa		
RHSColourChart (indicate reference number)	Code RHS des couleurs (indiquerle numéroderéférence)	RHS-Farbkarte (Nummerangeben)	CartadecoloresRHS (indíqueseelnúmero dereferencia)		

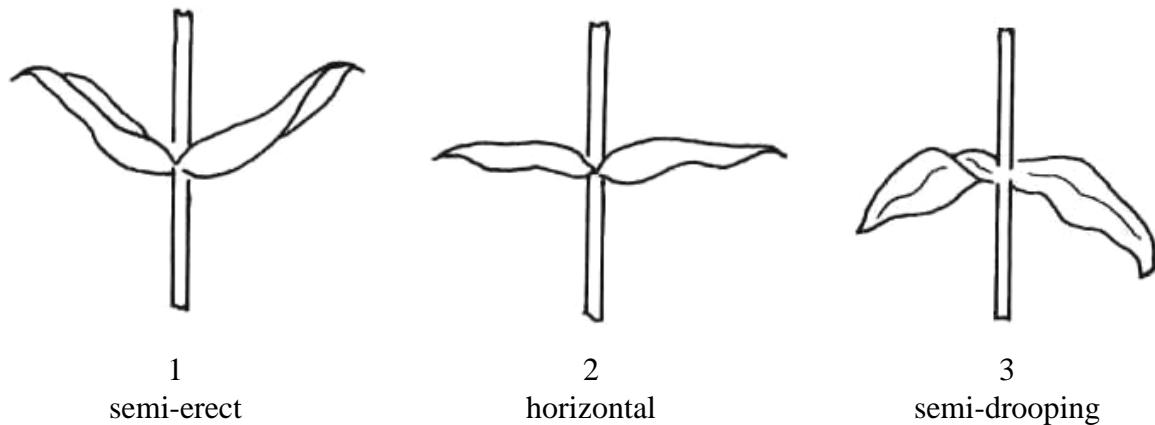
English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejempl	Note/ Nota
26. <u>Bi-colored varietiesonly :</u> <small>(*) Petal: maincolor ofupperside</small>	Seulementles variétésbicolores : Pétale: couleur principale dela face supérieure	Nur zweifarbig Sorten: Blütenblatt: Hauptfarbeder Oberseite	Sólo para variedades bicolores: Pétalo: color principal de la cara externa		
RHSColourChart (indicate reference number)	Code RHS des couleurs (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indique el número de referencia)		
27. <u>Bi-colored varietiesonly :</u> <small>(*) Petal:secondary colorofupperside</small>	Seulementles variétésbicolores : Pétale: couleur secondaire dela face supérieure	Nur zweifarbig Sorten: Blütenblatt: Sekundärfarbeder Oberseite	Sólo para variedades bicolores: Pétalo: color secundario de la cara externa		
RHSColourChart (indicate reference number)	Code RHS des couleurs(indiquerle numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indique el número de referencia)		
28. <u>Bi-colored varietiesonly :</u> <small>(*) Petal:relative areaofsecondary color</small>	Seulementles variétésbicolores : Pétale: zone relative occupée par la couleur secondaire	Nur zweifarbig Sorten: Blütenblatt: relative Zonen der Sekundärfarbe	Sólo para variedades bicolores: Pétalo: superficie relativa del color secundario		
small	petite	klein	pequeña		3
medium	moyenne	mittel	media		5
large	grande	groß	grande		7
29. <u>Bi-colored varietiesonly :</u> <small>(*) Petal:color pattern</small>	Seulementles variétésbicolores : Pétale: répartition de la couleur	Nur zweifarbig Sorten: Blütenblatt: Farbverteilung	Sólo para variedades bicolores: Pétalo: distribución del color		
spottedtip	extrémémentouchetée	gefleckte Spitze	ápicemanchado		1
picotee	picotée	gezackt	moteado	Azumano Yosooi	2
shaded	dégradée	schattiert	sombreado	RainyOrange	3
splashed	panachée	gesprenkelt	salpicado	KingofBlueFlash	4
medianstripe	raie médiane	Mittelstreifen	estríacentral		5

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplares	Note/ Nota
30. Petal: maincolor of flower side (*)	Pétale: couleur principale de la face inférieure	Blütenblatt: Hauptfarbe der Unterseite	Pétalo: color principal de la cara interna		
RHS Colour Chart (indicate reference number)	Code RHS des couleurs (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indique el número de referencia)		
31. Petal: color of base (*)	Pétale: couleur de la base	Blütenblatt: Farbe der Basis	Pétalo: color de base		
green	verte	grün	verde	HakuSen	1
violet	violette	violett	violeta	FukuShihai	2
brown	brune	braun	marrón	DeepPurple	3
32. Calyx: length (+)	Calice: longueur	Kelch: Länge	Cáliz: longitud		
short	court	kurz	corto		3
medium	moyen	mittel	medio	YukinoMine	5
long	long	lang	largo		7
33. Calyx: anthocyanin coloration	Calice: pigmentation anthocyanique	Kelch: Anthocyansfärbung	Cáliz: pigmentación antociánica		
absent	absente	fehlend	ausente	HakuSen	1
present	présente	vorhanden	presente	ShiSen	9
34. Pedicel: length	Pédicelle: longueur	Blütenstiellänge	Pedicelo: longitud		
short	court	kurz	corto	WhiteCoronet	3
medium	moyen	mittel	medio	HakuSen	5
long	long	lang	largo		7
35. Pistil: shape (*) (+)	Pistil: forme	Griffel: Form	Pistilo: forma		
type I	type I	Typ I	tipo I		1
type II	type II	Typ II	tipo II		2

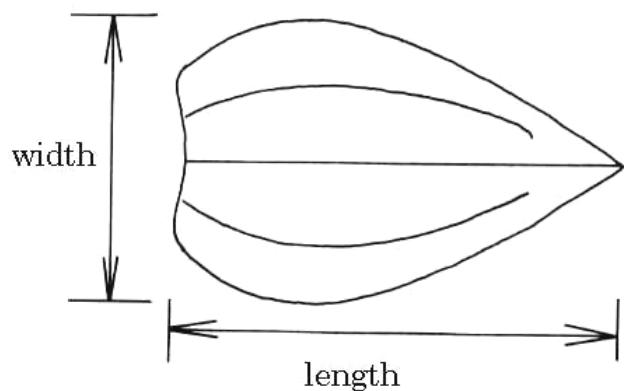
English	français	deutsch	español	Example Varieties	Note/ Nota
				Exemples Beispielssorten Variedades ejempl	
36. Time of beginning offlowering (*)	Époque du début de floraison	Zeitpunkt des Blühbeginns	Époque del comienzo de la floración		
early	précoce	früh	temprana	Azumano Yosooi	3
medium	moyenne	mittel	media	HakuSen	5
late	tardive	spät	tardía	FukuShihai	7

VIII. Explanations on the Table of Characteristics

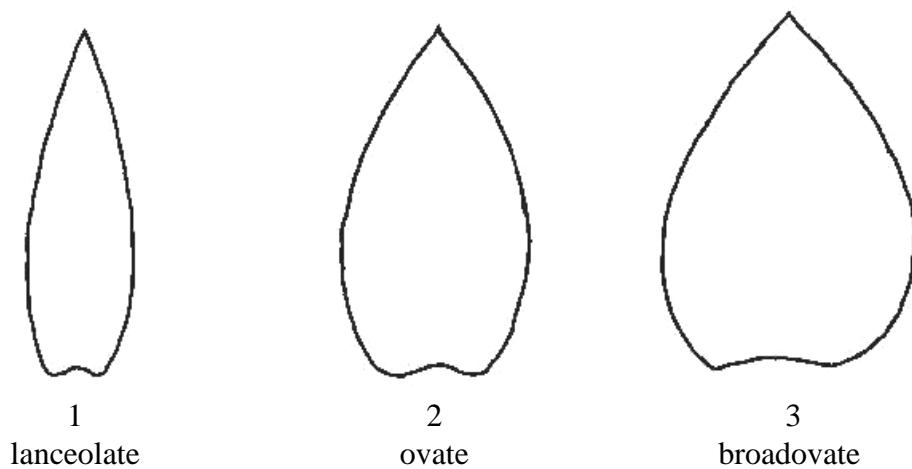
Ad. 8: Leaf: attitude relative to the stem



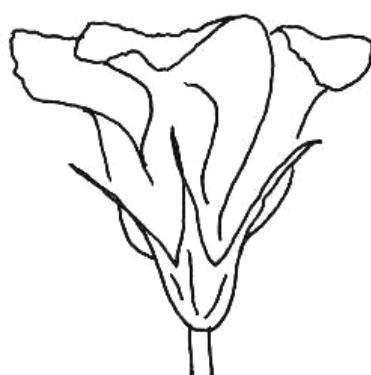
Ad. 9 and 10: Leaf: length (9) and width (10)



Ad. 11: Leaf: shape



Ad.18: Flower: s hape



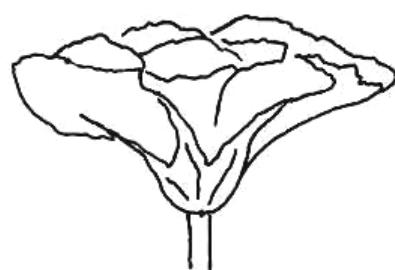
1
campanulate



2
narrowfunnel -shaped



3
widefunnel -shaped



4
saucer-shaped

Ad.21: Petal: s hapeoftopmargin



1
retuse



2
flat

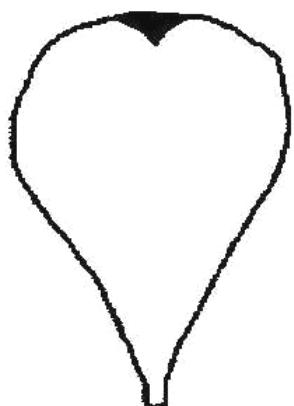


3
rounded

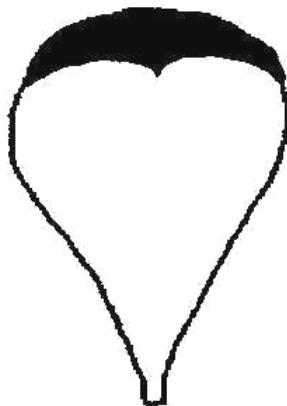


4
acute

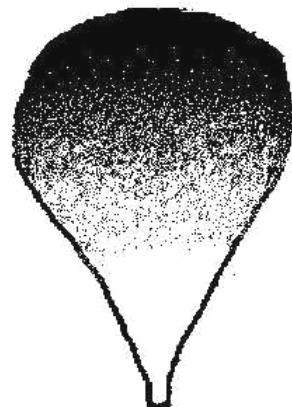
Ad.29:Bi -colored varieties only:Petal:colorpattern



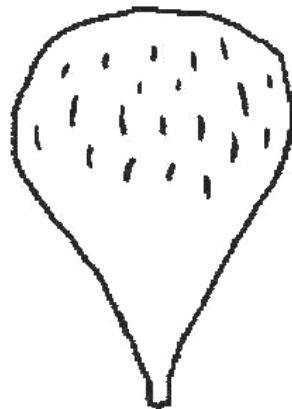
1
spottedtip



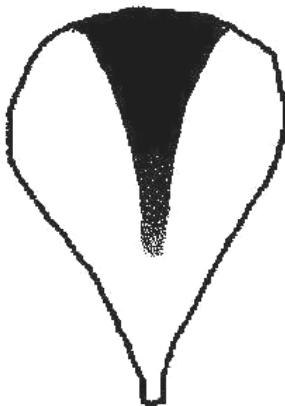
2
picotee



3
shaded

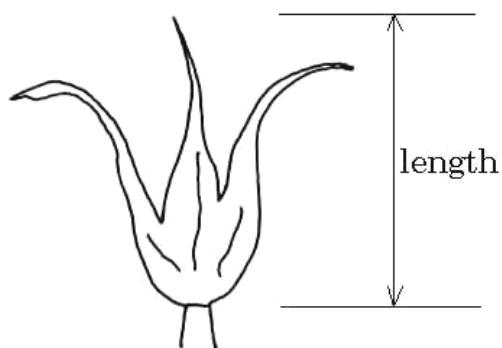


4
splashed

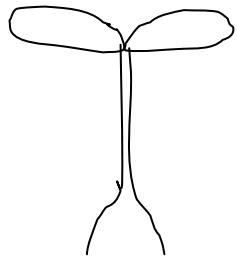


5
medianstripe

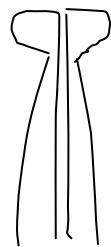
Ad. 32: Calyx: length



Ad.3 5: Pistil: shape



1
type I



2
typeII

IX. Literature

KiyoshiOkawa,1992:Eustoma (Torukogikyo)Seibunndo -ShinkosyaCo., Tokyo,J P.

X. Technical Questionnaire

	Reference Number (not to be filled in by the applicant)
TECHNICAL QUESTIONNAIRE to be completed in connection with an application for plant breeders' rights	
1. Species	<i>Eustoma grandiflorum</i> (Raf.) Shinners EUSTOMA(LISIANTHUS)
2. Applicant (Name and address)	
3. Proposed denomination or breeder's reference	

4. Information on origin, maintenance and reproduction of the variety

4.1 Origin

(a) Seedling (indicate parent varieties)

.....

[]

(b) Mutation (indicate parent variety)

.....

[]

(c) Discovery (indicate where and when)

.....

[]

(d) Other (specify)

.....

[]

4.2 Method of reproduction

- Seed

- F₁ hybrid

[]

- Cross pollination

[]

- Other (specify)

[]

- Cuttings

[]

- *In vitro* propagation

[]

4.3 Other information

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

Characteristics	Example Varieties	Note
5.1 Flower: type (15)		
single		1[]
double		2[]
5.2 Petal: number of colors (24)		
one colored		1[]
bi-colored		2[]
5.3i One-colored varieties only :Petal:color of upperside (25)	RHS Colour Chart(indicate reference number)
white		1[]
yellow		2[]
lightgreen		3[]
pink		4[]
orange		5[]
red		6[]
purple		7[]
violet		8[]
5.3ii One-colored varieties only :Petal:color of upperside (25)		
5.4i Bi-colored varieties only :Petal:main color of upperside (26)	RHS Colour Chart(indicate reference number)

Characteristics	Example Varieties	Note
5.4ii <u>Bi-colored varieties only :Petal:maincolor of upperside</u> (26)		
white		1[]
yellow		2[]
lightgreen		3[]
pink		4[]
orange		5[]
red		6[]
purple		7[]
violet		8[]
5.5i <u>Bi-colored varieties only :Petal:secondarycolorofupperside</u> (27)	RHS Colour Chart(indicate reference number)
5.5ii <u>Bi-colored varieties only :Petal:secondarycolor of upperside</u> (27)		
white		1[]
yellow		2[]
lightgreen		3[]
pink		4[]
orange		5[]
red		6[]
purple		7[]
violet		8[]
5.6 Petal:colorofbase (31)		
green	HakuSen	1[]
violet	FukuShihai	2[]
brown	DeepPurple	3[]

Characteristics	Example Varieties	Note	
5.7 Time of beginning of flowering (36)			
early	AzumanoYosooi	3[]	
medium	HakuSen	5[]	
late	FukuShihai	7[]	
6. Similar varieties and differences from these varieties			
Denomination of similar variety	Characteristic in which the similar variety is different ^{o)}	State of expression of similar variety	State of expression of candidate variety
^{o)} In the case of identical states of expressions of both varieties, please indicate the size of the difference.			

7. Additional information which may help to distinguish the variety

7.1 Resistance to pests and diseases

7.2 Use of the variety:

Pot plant

Cut flower

Other (specify)

7.3 Special conditions for the examination of the variety

7.4 Other information

A representative color photo of the variety should be added to the Technical Questionnaire.

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 that question is yes, please attach a copy of such an authorization.