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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

DRAFT

**GUIDELINES
FOR THE CONDUCT OF TESTS
FOR DISTINCTNESS, UNIFORMITY AND STABILITY**

PENTAS

(Pentas Benth.)

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. Subject of these Guidelines

These Test Guidelines apply to all varieties of *Pentas* Benth. of the family Rubiaceae.

II. Material Required

1. The competent authorities decide when, where and in what quantity and quality the plant material 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 make sure that all customs formalities are complied with. As a minimum, the following quantity of material is recommended:

vegetatively propagated varieties: 25 rooted cuttings;

seed propagated varieties: 1 gram seeds,
germination capacity of at least 50%.

2. The plant material supplied should be visibly healthy, not lacking in vigor or affected by any important pests or diseases.

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. Conduct of Tests

1. The tests for vegetatively propagated varieties should normally be conducted over one growing cycle. If the examination cannot be completed in one growing cycle, the test should be extended for a second growing cycle.

2. The test for seed-propagated varieties should normally be conducted over two growing cycles.

3. The test 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.

4. The test should be carried out under conditions ensuring normal growth.

Seed propagated varieties:

Sowing-time: January (Northern Hemisphere) is recommended for flowering in May.

Growing medium: Well-drained; seeds should be covered with a very thin layer of sand, and with a thin layer of transparent PVC and cloth until germination.

Temperature: Germination should occur after 2-3 weeks at a temperature of 18-20 °C.

Vegetatively propagated varieties:

Growing medium: Well-drained, fertile, with a high content of organic matter or organic substrate.

Temperature: Minimum of 17 °C.

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 cycle.

In the case of vegetatively propagated varieties, each test should include a total of 25 plants. In the case of seed propagated varieties, each test should include a total of at least 100 plants. Separate plots for observation and for measuring should only be used if they have been subject to similar environmental conditions.

5. Additional tests for special purposes may be established.

IV. Methods and Observations

1. Unless otherwise indicated, all observations on vegetatively propagated varieties should be made on 10 plants or parts taken from each of 10 plants.

2. For the assessment of uniformity of vegetatively propagated varieties a population standard of 1% with an acceptance probability of at least 95% should be applied. In the case of a sample size of 25 plants, the maximum number of off-types allowed would be 1.

3. For the assessment of uniformity of seed propagated varieties, the rules for cross-pollinated varieties, as provided in the General Introduction, should be followed.

4. All observations on the flower should be made at full flowering.

5. 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 tolerance set out in 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) Plant: growth type (Technical Questionnaire 7.2)
- (b) Corolla lobe: main color on upper side (characteristic 26) with the following groups:
 - Gr. 1: white
 - Gr. 2: light pink
 - Gr. 3: pink
 - Gr. 4: red
 - Gr. 5: purple

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 cycle over which examinations are made, and always be included in the variety descriptions, except when 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. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteresticas

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplos	Note/ Nota
1. (*) Plant: growth habit	Plante: port	Pflanze: Wuchsform	Planta: hábito de crecimiento		
upright	dressé	aufrecht	erecto		1
semi-upright	demi-dressé	halbaufrecht	semierecto		2
spreading	étalé	breitwüchsig	rastrero	Mercur, Romance	3
2. (*) Plant: height	Plante: hauteur	Pflanze: Höhe	Planta: altura		
short	courte	niedrig	baja		3
medium	moyenne	mittel	media		5
tall	grande	hoch	alta	Festival, Partytime	7
3. (*) Stem: length of internodes (in middle third)	Tige: longueur des entrenœuds (au tiers supérieur)	Haupttrieb: Länge der Internodien (im mittleren Drittel)	Tallo: longitud de los entrenudos (en el tercio medio)		
short	courts	kurz	cortos		3
medium	moyens	mittel	medios	Lola, Titan	5
long	longs	lang	largos	Apollo, Venus	7
4. (*) Stem: green color	Tige: couleur verte	Haupttrieb: Grünfärbung	Tallo: color verde		
light	claire	hell	claro	Jupiter, Mercur, Saturn	3
medium	moyenne	mittel	medio		5
dark	foncée	dunkel	oscuro	Romance	7
5. (*) Stem: anthocyanin coloration	Tige: pigmentation anthocyanique	Haupttrieb: Anthocyansfärbung	Tallo: pigmentación antociánica		
absent	absente	fehlend	ausente	Saturn	1
present	présente	vorhanden	presente	Jupiter, Lore	9

	English	français	deutsch	español	Example Varieties	Note/ Nota
					Exemples Beispielssorten Variedades	
6. <small>(*)</small>	Leaf blade: length	Limbe: longueur	Blattspreite: Länge	Limbo: longitud		
	short	court	kurz	corto		3
	medium	moyen	mittel	medio	Lina, Pluto	5
	long	long	lang	largo	Festival, Lilac In, Saturn	7
7. <small>(*)</small>	Leaf blade: width	Limbe: largeur	Blattspreite: Breite	Limbo: anchura		
	narrow	étroit	schmal	estrecho	Lina	3
	medium	moyen	mittel	medio	Lilac In	5
	broad	large	breit	ancho	Jupiter	7
8. <small>(*)</small>	Leaf blade: shape	Limbe: forme	Blattspreite: Form	Limbo: forma		
	ovate	ovale	eiförmig	oval	Lilli	1
	elliptic	elliptique	elliptisch	elíptico	Comet, Lilac In, Purple Rain	2
	obovate	obovale	verkehrt eiförmig	oboval		3
9. <small>(*)</small>	Leaf blade: green color of upper side	Limbe: couleur verte de la partie supérieure	Blattspreite: Grünfärbung der Oberseite	Limbo: color verde de la haz		
	light	claire	hell	claro		3
	medium	moyenne	mittel	medio	Galaxy	5
	dark	foncée	dunkel	oscuro	Romance, Saturn	7
10. <small>(*)</small>	Leaf blade: pubescence	Limbe: pilosité	Blattspreite: Behaarung	Limbo: pubescencia		
	sparse	faible	locker	rala	Mars, Pink In	3
	medium	moyenne	mittel	media	Festival, Partytime	5
	dense	forte	dicht	densa		7

	English	français	deutsch	español	Example Varieties	Note/ Nota
					Exemples Beispielssorten Variedades ejemplo	
11.	Leaf blade: blistering	Limbe: cloqûre	Blattspreite: Blasigkeit	Limbo: abullonado		
	absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Lina	1
	weak	faible	gering	débil	Lilac In, Partytime	3
	medium	moyenne	mittel	medio		5
	strong	forte	stark	fuerte		7
	very strong	très forte	sehr stark	muy fuerte		9
12.	Inflorescence: <u>maximum</u> diameter (*) (+)	Inflorescence: <u>diamètre maximal</u>	Blütenstand: <u>größter</u> <u>Durchmesser</u>	Inflorescencia: <u>diámetro máximo</u>		
	small	petit	klein	pequeño		3
	medium	moyen	mittel	medio	Festival	5
	large	grand	groß	grande	Lilac In	7
13.	Inflorescence: <u>minimum</u> diameter (*) (+)	Inflorescence: <u>diamètre minimal</u>	Blütenstand: <u>kleinster</u> <u>Durchmesser</u>	Inflorescencia: <u>diámetro mínimo</u>		
	small	petit	klein	pequeño		3
	medium	moyen	mittel	medio		5
	large	grand	groß	grande		7
14.	Inflorescence: height (*) (+)	Inflorescence: hauteur	Blütenstand: Höhe	Inflorescencia: altura		
	low	basse	niedrig	baja		3
	medium	moyenne	mittel	media		5
	high	haute	hoch	alta		7
15.	Inflorescence: shape of upper side (*) (+)	Inflorescence: forme de la face supérieure der Oberseite	Blütenstand: Form	Inflorescencia: forma de la cara superior		
	flat	plate	eben	plana		1
	rounded	arrondie	rundlich	redondeada	Galaxy, Pluto, Titan	2

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
16. (*)	Corolla: diameter	Corolle: diamètre	Krone: Durchmesser	Corola: diámetro		
	small	petit	klein	pequeño		3
	medium	moyen	mittel	medio	Lina, Lola	5
	large	grand	groß	grande		7
17. (*)	Corolla tube: length	Tube de la corolle: longueur	Kronenröhre: Länge	Tubo de la corola: longitud		
	short	court	kurz	corto	Red In	3
	medium	moyen	mittel	medio	Lola, Venus	5
	long	long	lang	largo		7
18. (*)	Corolla tube: color	Tube de la corolle: couleur	Kronenröhre: Farbe	Tubo de la corola: color		
	RHS Colour Chart (indicate reference number)	Code RHS des couleurs (préciser le numéro de référence)	RHS-Farbkarthe (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		
19.	Corolla limb: length	Limbe de la corolle: longueur	Kronenrand: Länge	Corona de la corola: longitud		
	short	court	kurz	corto		3
	medium	moyen	mittel	medio		5
	long	long	lang	largo		7
20. (*)	Corolla limb: color of distal part of hairs on inner side	Limbe de la corolle: couleur de la partie distale des poils de la face interne	Kronenrand: Farbe des distalen Teils der Haare auf der Innenseite	Corona de la corola: color de la parte distal de los pelos de la cara interior		
	whitish	blanchâtre	weißlich	blanquecino	Lilli, Lola, Saturn	1
	pink	rose	rosa	rosa		2
	red	rouge	rot	rojo		3
	red purple	rouge pourpre	rotpurpur	púrpura rojizo	Purple Rain	4
	blue purple	bleu pourpre	blaupurpur	púrpura azulado		5
	grey purple	gris pourpre	graupurpur	púrpura grisáceo	Romance	6

	English	français	deutsch	español	Example Varieties	Note/ Nota
					Exemples Beispielssorten Variedades	
21.	Corolla lobe: attitude (*) (+)	Lobe de la corolle: port	Kronzipfel: Haltung	Lóbulo de la corola: porte		
	semi-erect	demi-dressé	halbaufrecht	semierecto	Jupiter, Lola, Saturn	1
	horizontal	horizontal	waagerecht	horizontal	Festival, Partytime, Purple Rain	2
	recurved	incurvé	zurückgeschlagen	recurvado		3
22.	Corolla lobe: length (*)	Lobe de la corolle: longueur	Kronzipfel: Länge	Lóbulo de la corola: longitud		
	short	court	kurz	corto	Comet	3
	medium	moyen	mittel	medio	Lina, Lola	5
	long	long	lang	largo		7
23.	Corolla lobe: width (*)	Lobe de la corolle: largeur	Kronzipfel: Breite	Lóbulo de la corola: anchura		
	narrow	étroit	schmal	estrecho		3
	medium	moyen	mittel	medio	Comet, Lina, Lola	5
	broad	large	breit	ancho		7
24.	Corolla lobe: shape (*)	Lobe de la corolle: forme	Kronzipfel: Form	Lóbulo de la corola: forma		
	ovate	ovale	eiförmig	oval	Lina, Lola, Lore	1
	elliptic	elliptique	elliptisch	elíptico		2
	obovate	obovale	verkehrt eiförmig	oboval		3
25.	Corolla lobe: number of colors on upper side (*)	Lobe de la corolle: nombre de couleurs sur la partie supérieure	Kronzipfel: Anzahl Farben der Oberseite	Lóbulo de la corola: número de colores en la cara superior		
	one	une	eine	uno	Festival, Jupiter, Mars	1
	more than one	plus d'une	mehr als eine	más de uno	Romance	2

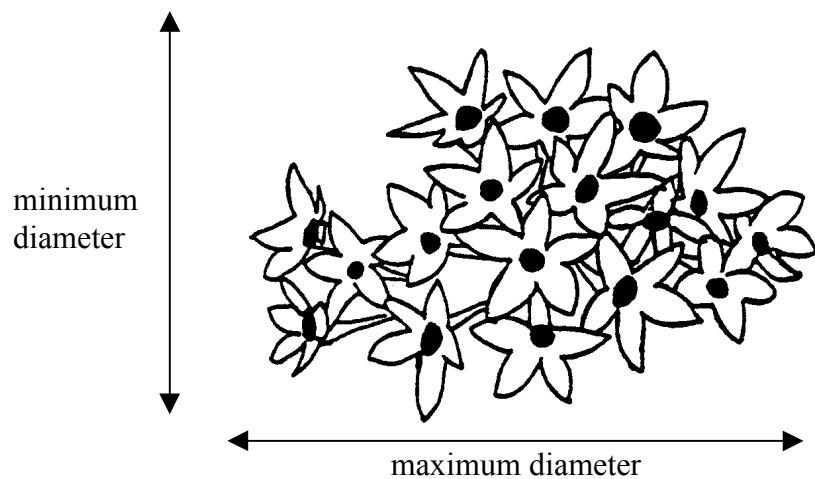
	English	français	deutsch	español	Example Varieties	Note/ Nota
					Exemples Beispielssorten Variedades ejemplo	
26. (*) (+)	Corolla lobe: main color on upper side	Lobe de la corolle: principale couleur sur la face supérieure	Kronzipfel: Hauptfarbe der Oberseite	Lóbulo de la corola: color principal en la cara superior		
	RHS Colour Chart (indicate reference number)	Code RHS des couleurs (préciser le numéro de référence)	RHS-Farbkarte (Nummer angeben)		Carta de colores RHS (indíquese el número de referencia)	
27.	Varieties with more than one color on upper side: corolla lobe: secondary color	Variétés ayant plus d'une couleur sur la face supérieure: lobe de la corolle: couleur secondaire	Sorten mit mehr als einer Farbe an der Oberseite: Kronzipfel: Sekundärfarbe	Variedades con más de un color en la cara superior: lóbulo de la corola: color secundario		
	white	blanche	weiß	blanco		1
	pink	rose	rosa	rosa		2
	red	rouge	rot	rojo		3
	red purple	rouge pourpre	rotpurpur	púrpura rojizo		4
	blue purple	bleu violacé	blaupurpur	púrpura azulado	Romance	5
28. (*)	Varieties with more than one color on upper side: corolla lobe: distribution of secondary color	Variétés ayant plus d'une couleur sur la face supérieure: lobe de la corolle: répartition de la couleur secondaire	Sorten mit mehr als einer Farbe an der Oberseite: Kronzipfel: Verteilung der Sekundärfarbe	Variedades con más de un color en la cara superior: lóbulo de la corola: distribución del color secundario		
	at the tip	à l'extrémité	an der Spitze	en el ápice		1
	along margin	le long du bord	am Rand	a lo largo del margen	Romance	2
	splashed	maculée	fleckig	manchado		3
	eyed	mouchetée	augenförmig	moteado		4
	median stripe	strié médiane	Mittelstreifen	estría central		5
29. (*)	Anthers: level in relation to top of limb	Anthères: position par rapport au sommet du limbe	Antheren: Höhe im Verhältnis zum obersten Teil der Krone	Anteras: nivel en relación con la parte superior de la corona		
	above	au-dessus	oberhalb	por encima	Purple Rain	1
	same level	au même niveau	in gleicher Höhe	al mismo nivel	Apollo	2
	below	au-dessous	unterhalb	por debajo		3

	English	français	deutsch	español	Example Varieties	Note/ Nota
					Exemples Beispielssorten Variedades	
30.	Anther: color of pollen	Anthère: couleur du pollen	Anthere: Farbe des Pollens	Antera: color del polen		
	whitish	blanchâtre	weißlich	blanquecino		1
	yellowish	jaunâtre	gelblich	amarillento	Jupiter, Mars, Mercur	2
	greyish	grisâtre	gräulich	grisáceo	Purple Rain	3
31.	Pistil: length of style (*)	Pistil: longueur du style	Stempel: Länge des Griffels	Pistilo: longitud del estilo		
	short	court	kurz	corto	Purple Rain	3
	medium	moyen	mittel	medio	Lore, Venus	5
	long	long	lang	largo	Jupiter, Saturn	7
32.	Stigma: size of lobes (*)	Stigmate: taille des lobes	Narbe: Größe der Lappen	Estigma: tamaño de los lóbulos		
	small	petits	klein	pequeños	Comet	3
	medium	moyens	mittel	medios	Galaxy, Jupiter	5
	large	gros	groß	grandes		7
33.	Stigma: color of lobes (*)	Stigmate: couleur des lobes	Narbe: Farbe der Lappen	Estigma: color de los lóbulos		
	white	blancs	weiß	blanco	Romance	1
	yellow green	vert jaune	gelbgrün	verde amarillento	Galaxy, Purple Rain	2
	pink	roses	rosa	rosa	Lilli, Lola	3
	red	rouges	rot	rojo		4
	red purple	rouge pourpre	rotpurpur	púrpura rojizo	Lilo, Partytime	5
	blue purple	bleu pourpre	blaupurpur	púrpura azulado	Jupiter	6
	greyish	grisâtres	gräulich	grisaceo	Comet, Pluto	7

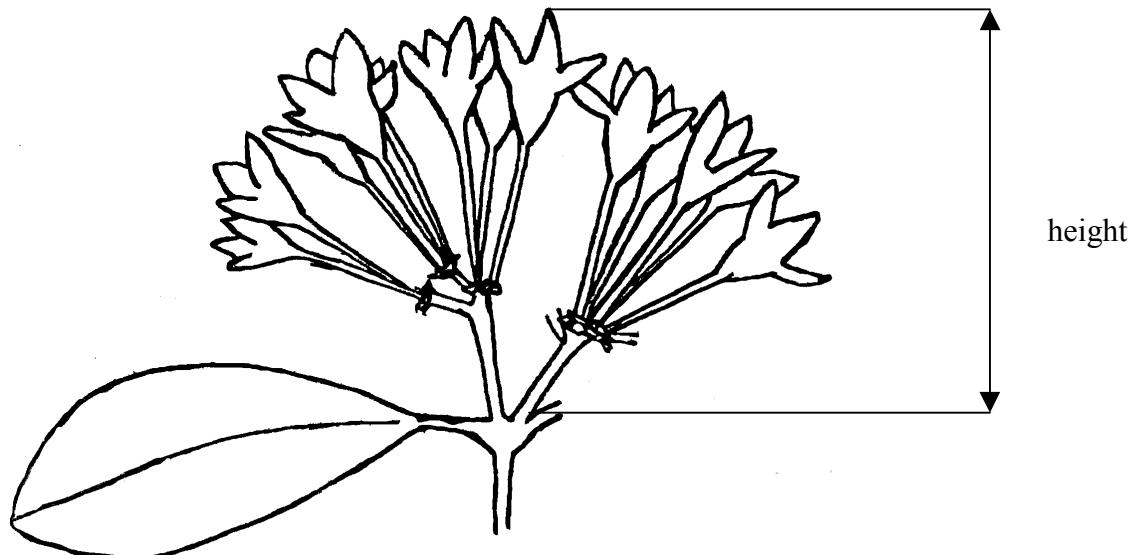
VIII. Explanations on the Table of Characteristics

Ad. 12: Inflorescence: maximum diameter

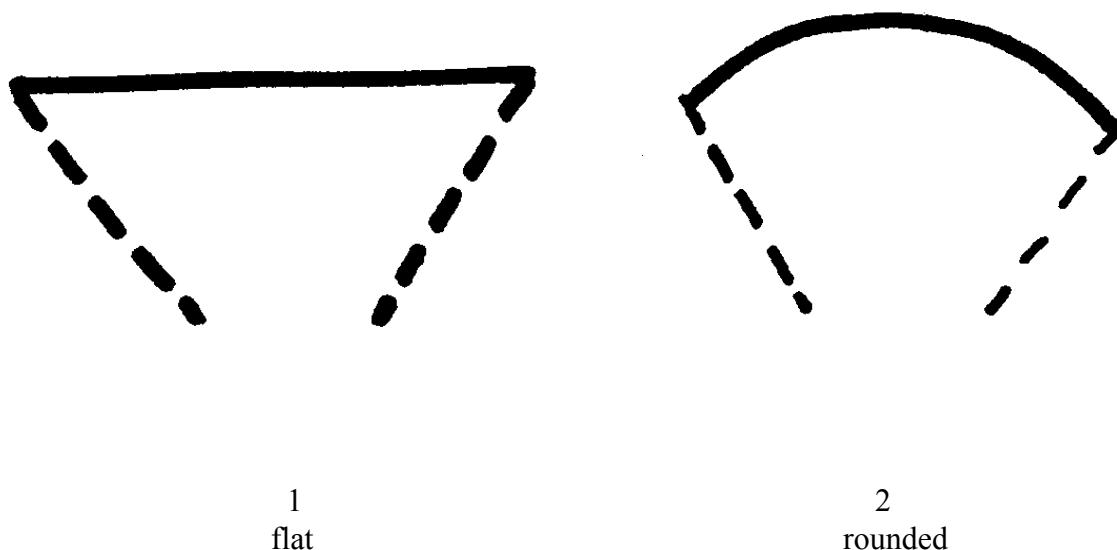
Ad. 13: Inflorescence: minimum diameter



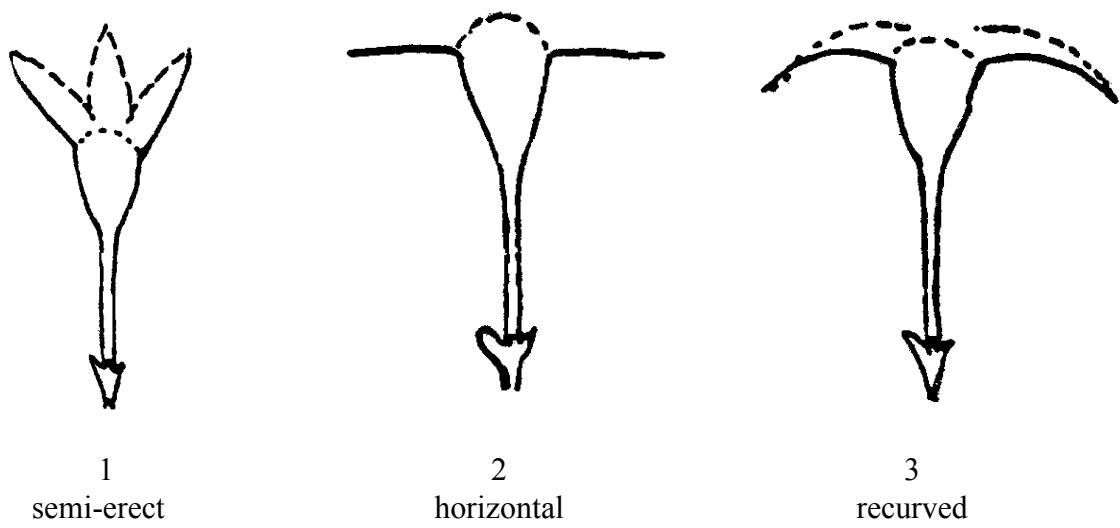
Ad. 14: Inflorescence: height



Ad. 15: Inflorescence: shape of upper side



Ad. 21: Corolla lobe: attitude



Ad. 26: Corolla lobe: main color on upper side: The main color of the flower is determined by the main color on the upper side of the inner tepals; the main color is the color which is present in the greatest area; in the case of bicolored or multicolored tepals where none of the colors is clearly predominant, the lightest color is considered to be the main color.

IX. Literature

Hortig A. M., Pentas lanceolata – Eine neue Beet-, Topf- und Schnittblume, Zierpflanzenbau Nr. 23-18.11.1993, pp. 1002-1004.

Papenhangen A., Sprau G., Neue Beetpflanze, wüchsig und erstaunlich witterungsfest, Gartenbörse und Gartenwelt, 1989, 2, 73-75.

Pearse H.L., Pentas, Pentas, Pentas, Farming in South Africa, Flowers and Ornamental Shrubs j., 10/1979.

Schwarz A., Dapper H., Pentas lanceolata, Biologie und Kultur einer wenig bekannten Zierpflanze, Zierpflanzenbau Nr. 25- 13. 12. 1989 , pp. 1012-1016.

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>Pentas</i> Benth. PENTAS
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

– cuttings

[]

– *in vitro* propagation

[]

– seed

[]

– other (specify)

[]

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
5.1i Corolla lobe: main color on upper side (26)	RHS Colour Chart (indicate reference number)	
white	White In	1[]
light pink	Pluto	2[]
pink	Titan	3[]
red	Partytime	4[]
purple	Apollo	5[]

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 pest and diseases

7.2 Special conditions for the examination of the variety

Plant growth type:

- potplant []
- cutflower []

7.3 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.

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