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TG/189/1

INTERNATIONAL UNION
FOR THE PROTECTION
OF NEW VARIETIES OF
PLANTS

UNION INTERNATIONALE
POUR LA PROTECTION
DES OBSTENTIONS
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

PENTAS

(*Pentas* Benth.)

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.

<u>TABLE OF CONTENTS</u>	<u>PAGE</u>
I. Subject of these Guidelines.....	3
II. Material Required.....	3
III. Conduct of Tests.....	3
IV. Methods and Observations.....	4
V. Grouping of Varieties.....	5
VI. Characteristics and Symbols.....	5
VII. Table of Characteristics.....	6
VIII. Explanations on the Table of Characteristics.....	13
IX. Literature.....	16
X. Technical Questionnaire.....	17

I. SubjectoftheseGuidelines

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

II. MaterialRequired

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 of seed,
germination capacity of at least 50%.

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 supplied should be visibly healthy, not lacking in vigor or affected by any important pests or diseases.
4. 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. 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 independent 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 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.

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. For vegetatively propagated varieties, each test should be designed to result in a total of at least 25 plants. For seed propagated varieties, each test should be designed to result in 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 recommendations in the General Introduction for cross-pollinated or hybrid varieties should be followed, as appropriate.
4. All observations on the flowers 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: height (characteristic 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 Characteristic in Chapter VIII.

VII. TableofCharacteristics/Tableaudescaractères/Merkmalstabelle/Tabladecaracteres

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplos	Note/ Nota
1. Plant:growth habit (*)	Plante:port	Pflanze:Wuchsform	Planta:hábitode 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 middlethird) (*)	Tige:longueur des entreœuds(autiers 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:greencolor (*)	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: Anthocyanfärbung	Tallo:pigmentación antociánica		
absent	absente	fehlend	ausente	Saturn	1
present	présente	vorhanden	presente	Jupiter,Lore	9
6. Leafblade:length (*)	Limbe:longueur	Blattspreite:Länge	Limbo:longitud		
short	court	kurz	corto		3
medium	moyen	mittel	medio	Lina,Pluto	5
long	long	lang	largo	Festival,LilacIn,Saturn	7

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplares	Note/ Nota
7. Leafblade:width (*)	Limbe:largeur	Blattspreite:Breite	Limbo:anchura		
narrow	étroit	schmal	estrecho	Lina	3
medium	moyen	mittel	medio	LilacIn	5
broad	large	breit	ancho	Jupiter	7
8. Leafblade:shape (*)	Limbe:forme	Blattspreite:Form	Limbo:forma		
ovate	ovale	eiförmig	oval	Lilli	1
elliptic	elliptique	elliptisch	elíptico	Comet,LilacIn, PurpleRain	2
obovate	obovale	verkehrteiförmig	oboval		3
9. Leafblade:green colorofupperside (*)	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. Leafblade: pubescence (*)	Limbe:pilosité	Blattspreite: Behaarung	Limbo:pubescencia		
sparse	faible	locker	rala	Mars,PinkIn	3
medium	moyenne	mittel	media	Festival,Partytime	5
dense	forte	dicht	densa		7
11. Leafblade: blistering	Limbe:cloûre	Blattspreite: Blasigkeit	Limbo:abullonado		
absentorveryweak	nulleoutrèsfaible	fehlendodersehr gering	ausenteomuydébil	Lina	1
weak	faible	gering	débil	LilacIn,Partytime	3
medium	moyenne	mittel	medio		5
strong	forte	stark	fuerte		7
verystrong	trèsforte	sehrstark	muyfuerte		9

English	français	deutsch	español	Example Varieties	Note/ Nota
				Exemples Beispielssorten Variedades ejempl	
12. Inflorescence: (*) <u>maximum</u> (+) diameter	Inflorescence: diamètre <u>maximal</u>	Blütenstand: <u>größter</u> Durchmesser	Inflorescencia: diámetro <u>máximo</u>		
small	petit	klein	pequeño		3
medium	moyen	mittel	medio	Festival	5
large	grand	groß	grande	LilacIn	7
13. Inflorescence: (*) <u>minimumdiameter</u> (+)	Inflorescence: diamètre <u>minimal</u>	Blütenstand: <u>kleinster</u> Durchmesser	Inflorescencia: diámetro <u>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: (*) shapeofupper (+) side	Inflorescence:forme delafacesupérieure	Blütenstand:Form derOberseite	Inflorescencia: formadelacara superior		
flat	plate	eben	plana		1
rounded	arrondie	rundlich	redondeada	Galaxy,Pluto,Titan	2
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

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplares	Note/ Nota
17. Corollatube: (*) length (+)	Tubedelacorolle: longueur	Kronenröhre:Länge	Tubode lacorola: longitud		
short	court	kurz	corto	RedIn	3
medium	moyen	mittel	medio	Lola,Venus	5
long	long	lang	largo		7
18. Corollatube:color (*)	Tubedelacorolle: couleur	Kronenröhre:Farbe	Tubodelacorola: color		
RHS Colour Chart (indicate reference number)	Code RHS des couleurs (préciser le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indique el número de referencia)		
19. Corollathroat: (*) colorofdistalpart (+) of hairsoninner side	Gorgedelac orolle: couleur de la partie distale des poils de la face interne	Kronenschlund: Farbedes distalen Teils der Haare auf der Innenseite	Gargantadela corola:color dela partedistal delos pelos de la cara interior		
whitish	blanchâtre	weißlich	blanquecino	Lilli,Lola,Saturn	1
pink	rose	rosa	rosa		2
red	rouge	rot	rojo		3
redpurple	rougepourpre	rotpurpur	púrpurarojizo	PurpleRain	4
bluepurple	bleupourpre	blaupurpur	púrpuraazulado		5
greypurple	grispourpre	graupurpur	púrpuragrisáceo	Romance	6
20. Corollalobe: (*) attitude (+)	Lobedelacorolle: port	Kronzipfel:Haltung	Lóbulo delacorola: porte		
semi-erect	demi-dressé	halbaufrecht	semierecto	Jupiter,Lola,Saturn	1
horizontal	horizontal	waagerecht	horizontal	Festival,Partytime , PurpleRain	2
recurved	incurvé	zurückgeschlagen	recurvado		3
21. Corollalobe: (*) length	Lobedelacorolle: longueur	Kronzipfel:Länge	Lóbulo delacorola: longitud		
short	court	kurz	corto	Comet	3
medium	moyen	mittel	medio	Lina,Lola	5
long	long	lang	largo		7

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejempl	Note/ Nota
22. Corollalobe: (*) width	Lobedelacorolle: largeur	Kronzipfel:Breite	Lóbulo delacorola: anchura		
narrow	étroit	schmal	estrecho		3
medium	moyen	mittel	medio	Comet,Lina,Lola	5
broad	large	breit	ancho		7
23. Corolla lobe: (*) shape	Lobedelacorolle: forme	Kronzipfel:Form	Lóbulo delacorola: forma		
ovate	ovale	eiförmig	oval	Lina,Lola,Lore	1
elliptic	elliptique	elliptisch	elíptico		2
obovate	obovale	verkehrteiförmig	oboval		3
24. Corollalobe: (*) numberof colors onupper side	Lobedelacorolle: nombre de couleurs sur la partie supérieure	Kronzipfel:Anzahl Farben der Oberseite	Lóbulo delacorola: número de colores en la cara superior		
one	une	eine	uno	Festival,Jupiter,Mars	1
morethanone	plus d'une	mehr als eine	más de uno	Romance	2
25. Corollalobe:main (*) color on upper side (+)	Lobedelacorolle: principale couleur sur la face supérieure	Kronzipfel: Hauptfarbe der Oberseite	Lóbulo delacorola: color principal en la cara superior		
RHS Color Chart (indicate reference number)	Code RHS des couleurs (préciser le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indique el número de referencia)		
26. Varieties with more than one color on upper side: corollalobe : secondary color	Variétés ayant plus d'une couleur sur la face supérieure : lobe delacorolle : 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
redpurple	rouge pourpre	rotpurpur	púrpura rojizo		4
bluepurple	bleu violacé	blaupurpur	púrpura azulado	Romance	5

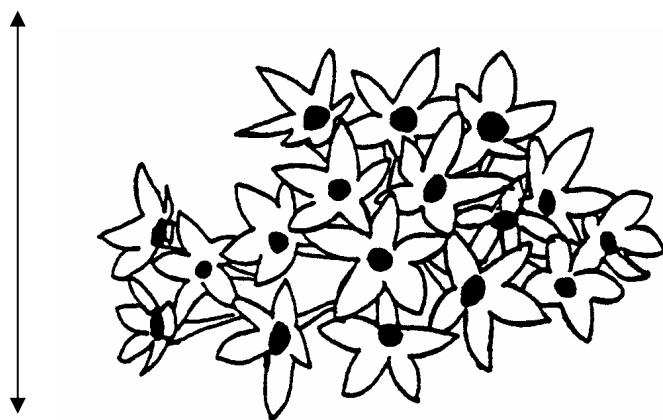
English	français	deutsch	español	Example Varieties	Note/ Nota
				Exemples Beispielssorten Variedades ejempl	
27. <u>Varietieswith</u> <u>(*) morethanone</u> <u>coloronupper</u> <u>side:corollalobe:</u> <u>distributionof</u> <u>secondarycolor</u>	<u>Variétés ayant plus</u> <u>d'une couleur sur la</u> <u>faces supérieure : lobe</u> <u>delacorolle:</u> <u>répartition de la</u> <u>couleur secondaire</u>	<u>Sorten mit mehr als</u> <u>einer Farbe an der</u> <u>Oberseite: Kronzipfel:</u> <u>Verteilung der</u> <u>Sekundärfarbe</u>	<u>Variedades con más</u> <u>de un color en la</u> <u>caras superior :</u> <u>lóbulo del corola:</u> <u>distribución del</u> <u>color secundario</u>		
at the tip	à l'extrême	an der Spitze	en el ápice		1
along margin	le long du bord	am Rand	al lo largo del margen	Romance	2
splashed	maculée	fleckig	manchado		3
eyed	mouchetée	augenförmig	moteado		4
median stripe	strié médiane	Mittelstreifen	estríacentral		5
28. <u>Anthers:levelin</u> <u>(*) relation to top of</u> <u>limb</u>	<u>Anthères: position</u> <u>par rapport au</u> <u>sommets du limbe</u>	<u>Antheren: Höhe im</u> <u>Verhältnis zum</u> <u>obersten Teil der</u> <u>Krone</u>	<u>Anteras: niveles</u> <u>relación con la parte</u> <u>superior de la</u> <u>corona</u>		
above	au-dessus	oberhalb	poren cima	Purple Rain	1
same level	aumême niveau	in gleicher Höhe	al mismo nivel	Apollo	2
below	au-dessous	unterhalb	por debajo		3
29. <u>Anther: color of</u> <u>pollen</u>	<u>Anthère: couleur du</u> <u>pollen</u>	<u>Anthere: Farbe des</u> <u>Pollens</u>	<u>Antera: color del</u> <u>polen</u>		
whitish	blanchâtre	weißlich	blanquecino		1
yellowish	jaunâtre	gelblich	amarillento	Jupiter, Mars, Mercur	2
greyish	grisâtre	gräulich	grisáceo	Purple Rain	3
30. <u>Pistil:length of</u> <u>(*) style</u>	<u>Pistil: longueur du</u> <u>style</u>	<u>Stempel:Länge des</u> <u>Griffels</u>	<u>Pistilo: longitud del</u> <u>estilo</u>		
short	court	kurz	corto	Purple Rain	3
medium	moyen	mittel	medio	Lore, Venus	5
long	long	lang	largo	Jupiter, Saturn	7
31. <u>Stigma:size of</u> <u>(*) lobes</u>	<u>Stigmate: taille des</u> <u>lobes</u>	<u>Narbe: Größe der</u> <u>Lappen</u>	<u>Estigma: tamaño de</u> <u>los lóbulos</u>		
small	petits	klein	pequeños	Comet	3
medium	moyens	mittel	medios	Galaxy, Jupiter	5
large	gros	groß	grandes		7

English	français	deutsch	español	Example Varieties	Note/ Nota
				Exemples Beispielssorten Variedades ejempl	
32. Stigma:color of (*) lobes	Stigmate:couleur des lobes	Narbe:Farbeder Lappen	Estigma:color de los lóbulos		
white	blancs	weiß	blanco	Romance	1
yellowgreen	vertjaune	gelbgrün	verdeamarillo	Galaxy,PurpleRain	2
pink	roses	rosa	rosa	Lilli,L ola	3
red	rouges	rot	rojo		4
redpurple	rougepourpre	rotpurpur	púrpurarojizo	Lilo,Partytime	5
bluepurple	bleupourpre	blaupurpur	púrpuraazulado	Jupiter	6
greyish	grisâtres	gräulich	grisaceo	Comet,Pluto	7

VIII. Explanations on the Table of Characteristics

Ad.12: Inflorescence: maximum diameter

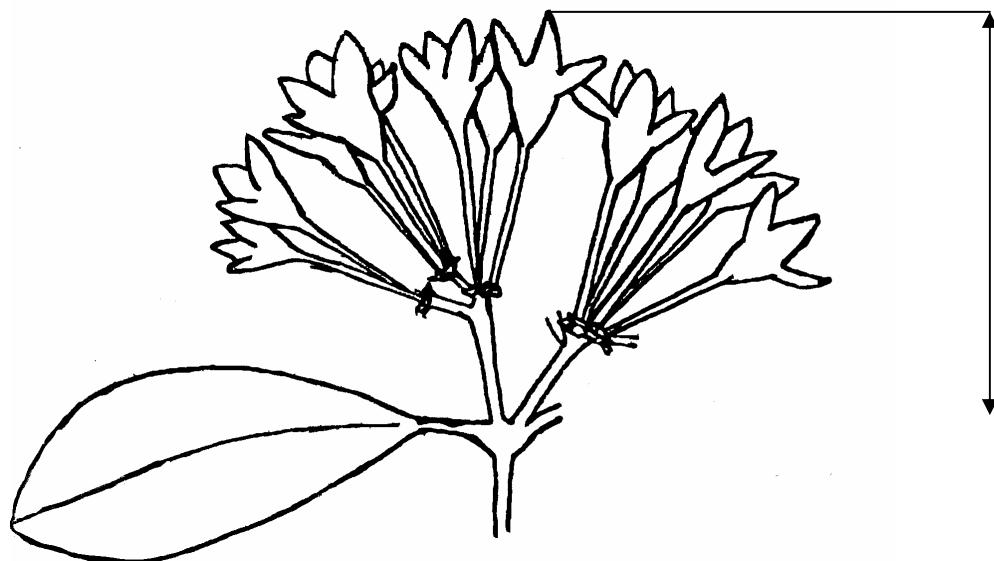
Ad.13: Inflorescence: minimum diameter



minimum
diameter

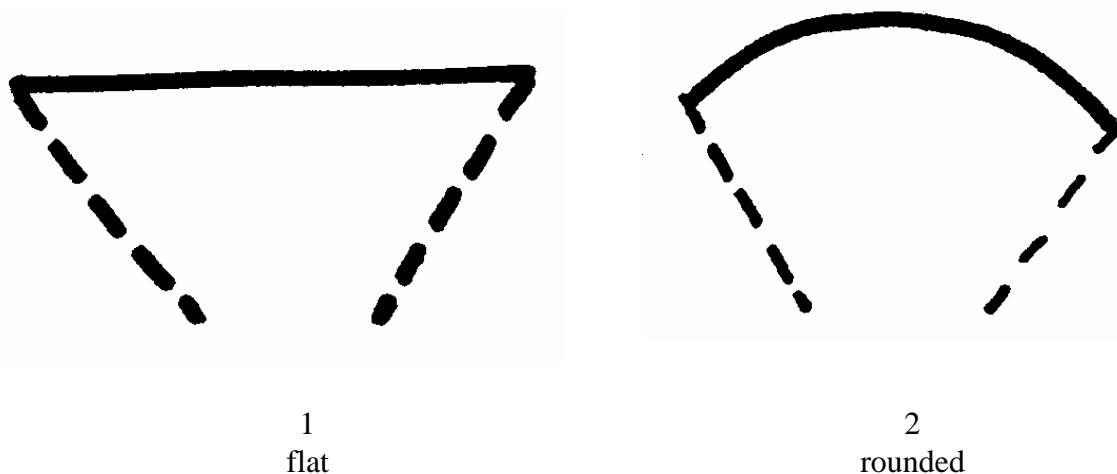
maximum diameter

Ad.14: Inflorescence: height

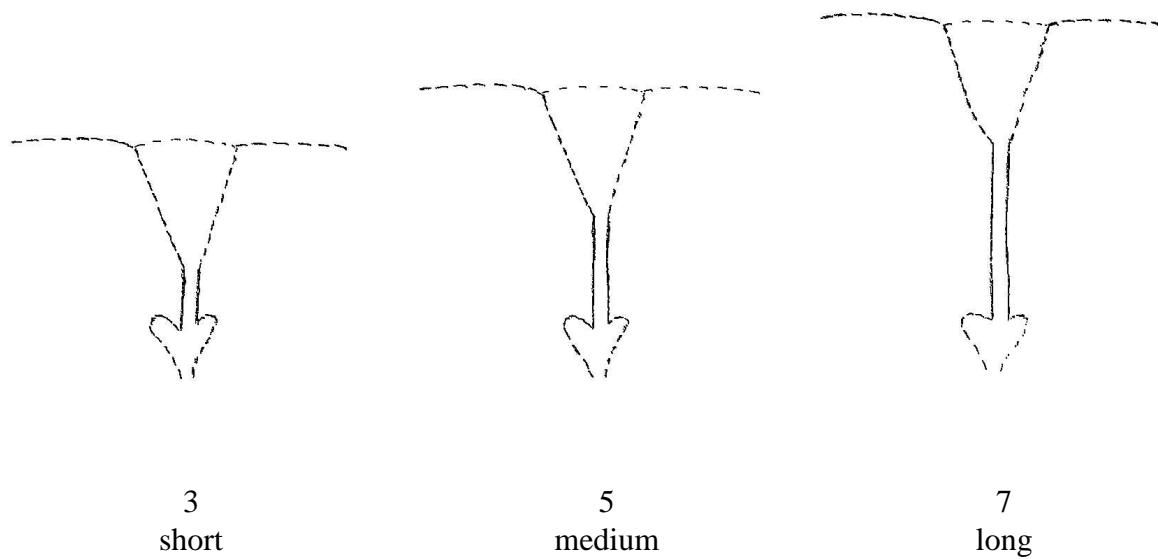


height

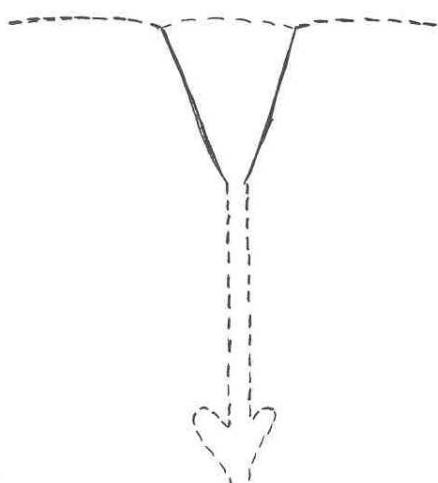
Ad.15:Inflorescence: shape of upper side



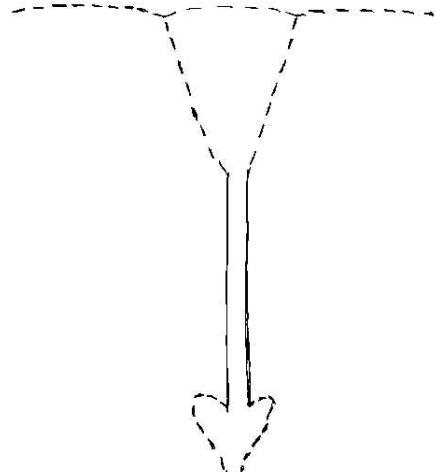
Ad.17:Corollatube:length



Ad.17+19:Corollathroatandcorollatube

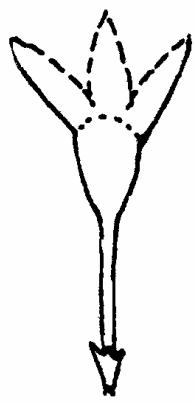


throat

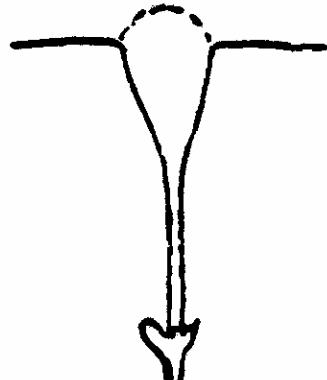


tube

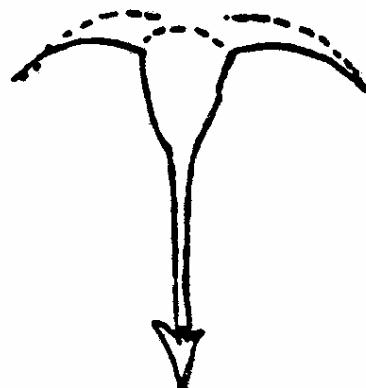
Ad.20:Corollalobe:attitude



1
semi-erect



2
horizontal



3
recurved

Ad.25:Corollalobe:maincoloronupperside :

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 –Ein neue Beet -, Topf -und Schnittblume,Zierpflanzenbau Nr.23 -18.11.1993,pp.1002 -1004.

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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,ZierpflanzenbauNr.25 -13.12.1989,pp.1012- 1016.

X. Technical Questionnaire

	ReferenceNumber (notto befilledinbytheapplicant)
TECHNICAL QUESTIONNAIRE tobecompletedinconnectionwithanapplicationforplantbreeders'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

[]

– *invitro* 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 (25)	RHS Colour Chart(indicate reference number)	
5.1ii Corolla lobe: main color on upper side (25)		
white	WhiteIn	1[]
lightpink	Pluto	2[]
pink	Titan	3[]
red	Partytyme	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 expression 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 Special conditions for the examination of the variety

Plant type:

- pot plant type
- cut flower type

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.