



TWO/33/4

ORIGINAL: English

DATE: May 18, 2000

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

**TECHNICAL WORKING PARTY
FOR
ORNAMENTAL PLANTS AND FOREST TREES**

**Thirty-Third Session
Budapest, June 26 to 30, 2000**

WORKING PAPER ON THE TEST GUIDELINES FOR PENTAS (*Pentas Benth.*)

Document prepared by experts from the Netherlands

<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	4
VI. Characteristics and Symbols	5
VII. Table of Characteristics	6
VIII. Explanations on the Table of Characteristics	13
IX. Literature	15
X. Technical Questionnaire	16

I. Subject of these Guidelines

These Test Guidelines apply to all vegetatively propagated varieties of *Pentas* Benth. of the family Rubiaceae and their hybrids.

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

or

seed propagated varieties : 1 gr. seeds,
germination capacity of 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. A test of vegetatively propagated varieties should normally be conducted for one growing period. If distinctness and/or homogeneity cannot be sufficiently established in one growing period, the test should be extended for a second growing period. A test of varieties propagated by seed should normally take two growing periods.

2. 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.

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

Seed propagated material:

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

Soil: well-drained sowing-soil; cover the seeds with a very thin layer of sand, and until germination with a thin layer of transparent PVC and cloth

Temperature: at a temperature of 18-20⁰ C germination will occur after 2-3 weeks

Vegetatively propagated material:

Soil: well-drained fertile soil, with a high content of organic matter or organic substrate

Temperature: minima of 17 °C

The size of the tests 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.

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

4. Additional tests for special purposed 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 material a population standard of 1% and 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. In the case of seed propagated material the rules as given in TG/1/2 should be followed.

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

4. 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 (T.Q. 7.2)
- (b) 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; if, in case of bicolored or multicolored tepals, none of the colors is clearly predominant then the lightest color will be the main color.

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 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 caracteres

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. Plant: growth habit					
(*)					
erect					1
semi-spreading					2
spreading					3
2. Plant: height					
(*)					
short					3
medium					5
tall					7
3. Stem: length of internodes (at middle third)					
(*)					
short					3
medium					5
long					7
4. Stem: green color					
(*)					
light					3
medium					5
dark					7
5. Stem: anthocyanin coloration					
(*)					
absent					1
present					9

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6. Leaf blade: length					
(*)					
short					3
medium					5
long					7
7. Leaf blade: width					
(*)					
narrow					3
medium					5
broad					7
8. Leaf blade: shape					
(*)					
ovate					1
elliptic					2
obovate					3
9. Leaf blade: green color of upper side					
(*)					
light					3
medium					5
dark					7
10. Leaf blade: pubescence					
(*)					
sparse					3
medium					5
dense					7

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
11. Leaf blade: blistering					
absent or very weak					1
weak					3
medium					5
strong					7
very strong					9
12. Inflorescence: (* maximum diameter (+)					
small					3
medium					5
large					7
13. Inflorescence: (* minimum diameter (+)					
small					3
medium					5
large					7
14. Inflorescence: (* height in profile (+)					
low					3
medium					5
high					7
15. Inflorescence: (* upper side of profile (+)					
flat					1
rounded					2

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
16. Corolla: diameter					
(*)					
small					3
medium					5
large					7
17. Corolla: length of tube					
(*)					
short					3
medium					5
long					7
18. Corolla: color of tube					
(*)					
RHS Colour Chart (indicate reference number)					
19. Corolla: height of limb					
(*)					
low					3
medium					5
high					7
20. Corolla: color of distal part of hairs on inner side of limb					
(*)					
whiteish					1
red					2
pink					3
red-purple					4
blue-purple					5
grey-purple					6

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<hr/>					
21. Corolla lobe:					
(*) length					
small					3
medium					5
large					7
<hr/>					
22. Corolla lobe: width					
(*)					
narrow					3
medium					5
broad					7
<hr/>					
23. Corolla lobe: shape					
(*)					
ovate					1
elliptic					2
obovate					3
<hr/>					
24. Corolla lobe:					
(*) attitude					
(+)					
semi-erect					1
horizontal					2
recurved					3
<hr/>					
25. Corolla lobe:					
(*) number of colors on upper side					
one					1
more than one					2
<hr/>					
26. Corolla lobe: main color on upper side					
(*)					
RHS Colour Chart (indicate reference number)					

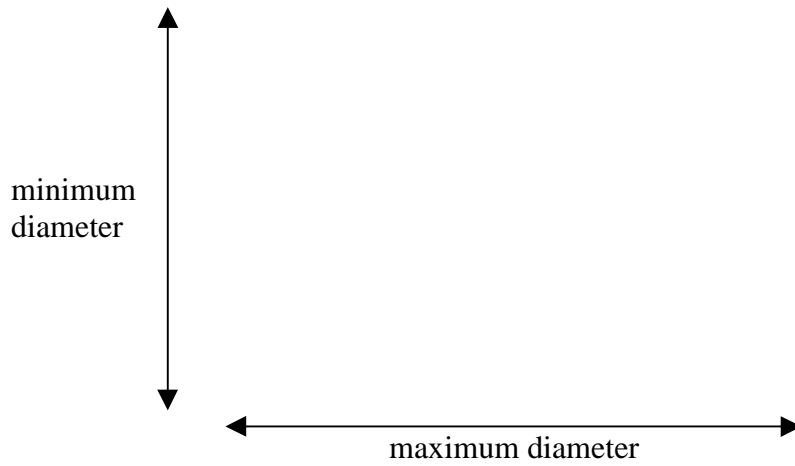
English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
27. Corolla lobe: secondary color on upper side					
white					1
red					2
pink					3
red-purple					4
blue-purple					5
28. Corolla lobe: (* pattern of secondary color					
at the tip					1
along margin					2
splashed					3
eyed					4
median stripe					5
29. Anthers: level in (* relation to the limb					
above					1
same					2
below					3
30. Anthers: color of pollen					
whiteish					1
yellowish					2
greyish					3

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
31. Pistil: length of style					
(*)					
short					3
medium					5
long					7
32. Stigma: size of lobes					
(*)					
small					3
medium					5
large					7
33. Stigma: color of lobes					
(*)					
white					1
yellow-green					2
red					3
pink					4
red-purple					5
blue-purple					6
greyish					7

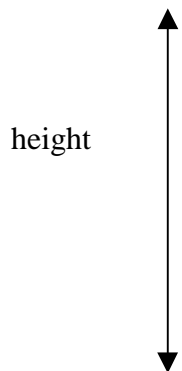
VIII. Explanations on the Table of Characteristics

Ad. 12: Inflorescence: maximum diameter

Ad. 13: Inflorescence: minimum diameter



Ad. 14: Inflorescence: height in profile



Ad. 15: Inflorescence: upper side of profile

1
flat

2
rounded

Ad. 24: Corolla lobe : attitude

1
semi-erect

2
horizontal

3
recurved

IX. Literature

Hortig A. M., Pentas lanceolata- Eine neue Beet-, Topf- und Schnittblume, Zierpflanzenbau Nr. 23-18.11.93, pp 1002-1004.

Papenhagen 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., Dipl. Ing., Dapper H., Prof. Dr., Pentas lanceolata, Biologie und Kultur einer wenig bekannten Zierpflanze, Zierpflanzenbau Nr. 25- 13. 12. 89 , pp 1012-1016.

X. Technical Questionnaire

	Reference Number (not to be filled in by the applicant)
<p>TECHNICAL QUESTIONNAIRE to be completed in connection with an application for plant breeders' rights</p>	
1. Species	<p style="text-align: center;"><i>Pentas Benth.</i> PENTAS</p>
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 []

- other (state method) []

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

5.1 Corolla lobe: main color on upper side (26)

RHS Colour Chart (indicate reference number)

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

a) plant growth type

-potplant []

-cutflower []

7.3 Other information

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

