



**European Union**  
Community Plant Variety Office

**PROTOCOL FOR DISTINCTNESS, UNIFORMITY AND STABILITY TESTS**

*Celosia L.*

**CELOSIA**

**UPOV Species Code: CELOS**

**Adopted on 27<sup>th</sup> March 2003**

## **I - SUBJECT OF THE PROTOCOL**

The protocol describes the technical procedures to be followed in order to meet the Council Regulation 2100/94 on Community Plant Variety Rights. The technical procedures have been agreed by the Administrative Council and are based on general UPOV Document TG/1/3, UPOV Guideline TG/188/1(proj.) dated 16<sup>th</sup> November 2001 + changes proposed by the Enlarged Editorial Committee of UPOV in April 2002 (TC/38/15 Annex IV, page 16) for the conduct of tests for Distinctness, Uniformity and Stability. This protocol applies to all varieties of *Celosia L.*

## **II - SUBMISSION OF PLANT MATERIAL**

1. The Community Plant Variety Office (CPVO) is responsible for informing the applicant of

- the closing date for the receipt of plant material;
- the minimum amount and quality of plant material required;
- the examination office to which material is to be sent.

The applicant is responsible for ensuring compliance with any customs and plant health requirements.

2. Final dates for receipt of documentation and material by the Examination Office

The final dates for receipt of requests, technical questionnaires and the final date or submission period for plant material will be decided by the CPVO and each Examination Office chosen.

The Examination Office is responsible for immediately acknowledging the receipt of requests for testing, and technical questionnaires. If no or unsatisfactory plant material is submitted the CPVO should be informed as soon as possible.

3. Plant material requirements

Survey of final dates for request for technical examination and sending of Technical Questionnaire by the CPVO as well as submission date of plant material by the applicant, and quantity of plant material to be supplied by the applicant in one sample.

Examination Office in	Request of examination	Plant material	
The Netherlands a)	01/12	between 01/03 and 31/03	100 rooted cuttings
The Netherlands b)	01/12	Before 01/02	5 gram of seed; germination capacity 50%

- a) vegetatively propagated varieties  
b) seed propagated varieties

Quality: ..... The plant material supplied should be visibly healthy, not lacking in vigour or affected by any important pest or disease, especially virus.

The plant material must not have undergone any treatment unless the CPVO and the examination office allow or request such treatment. If it has been treated, full details of the treatment must be given.

Labelling of sample: ..... - Species  
- File number of the application allocated by the CPVO  
- Breeder's reference  
- Examination reference (if known)  
- Name of applicant  
- The phrase "On request of the CPVO"

### **III - CONDUCT OF TESTS**

#### **1. Variety collection**

A variety collection will be maintained for the purpose of establishing distinctness of the candidate varieties in test. A variety collection may contain both living material and descriptive information. A variety will be included in a reference collection only if plant material is available to make a technical examination.

Pursuant to Article 7 of Council Regulation No. 2100/94, the basis for a collection should be the following:

- varieties listed or protected at the EU level;
- varieties protected in other UPOV Member States;
- any other variety in common knowledge.

It is the responsibility of Examination Office to keep the variety collection up to date.

## 2. Material to be examined

Candidate varieties will be directly compared with other candidates for Community plant variety rights tested at the same Examination Office, and with appropriate varieties in the variety collection. When necessary an Examination Office may also include other candidates and varieties.

## 3. Characteristics to be used

The characteristics to be used in DUS tests and preparation of descriptions shall be those referred to in Annex 1. All the characteristics shall be used, providing that observation of a characteristic is not rendered impossible by the expression of any other characteristic, or the expression of a characteristic is prevented by the environmental conditions under which the test is conducted. In the latter case, the CPVO should be informed. In addition the existence of some other regulation e.g. plant health, may make the observation of the characteristic impossible.

The Administrative Council empowers the President, in accordance with Article 23 of Commission Regulation N° 1239/95, to insert additional characteristics and their expressions in respect of a variety.

## 4. Grouping of varieties

The varieties and candidates to be compared will 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 and which in their various states of expression are fairly evenly distributed throughout the collection. In the case of continuous grouping characteristics overlapping states of expression between adjacent groups is required to reduce the risks of incorrect allocation of candidates to groups. The characters used for grouping are the following:

- a) Inflorescence: colour (characteristic 24)

## 5. Trial designs and growing conditions

The minimum duration of tests will normally be one growing cycle if the results on distinctness and uniformity are conclusive. Tests will be carried out under conditions ensuring normal growth. The size of the plots will be such that plants or parts of plants may be removed for measuring and counting without prejudice to the observations which must be made up to the end of the growing period.

The test design is as follows:

As a minimum, each test should include a total of 50 plants. Separate plots for observation and for measuring can only be used if they have been subject to similar environmental conditions.

All observations determined by measurement or counting should be made on 10 plants or parts taken from each of 10 plants.

Unless otherwise indicated, all observations should be made on plants with a full-grown inflorescence.

All observations on the leaf should be made on full-grown leaves located on the middle third of the stem.

All observations on the flower should be made at the beginning of anther dehiscence.

The test should normally be conducted at one place.

The test should be carried out in the greenhouse under the following growing conditions:

**Seed propagated varieties:**

Sowing method:..... direct seeding (because of taproot). The top layer of the soil must be kept moist.

Temperature:..... start: 20-30°C slowly decreasing to ca. 16 °C

Humidity:..... at the start: high, then slowly decreasing

**Vegetatively propagated varieties:**

Temperature:..... immediately after planting ca. 20°C to 25°C, slowly decreasing to ca. 16°C.

Humidity:..... high  
After appearance of the flowers, the soil should be kept drier and sprinkling should be stopped to reduce the risk of botrytis infection.

Plant spacing:..... ca. 32 pl/m<sup>2</sup>, max. 64 pl/m<sup>2</sup>

Shading: ..... none, celosia is very photo-sensitive

Most Celosia varieties need to be supported by 2 or 3 layers of wire netting.

## 6. Special tests

In accordance with Article 83(3) of Council Regulation No. 2100/94 an applicant may claim either in the Technical Questionnaire or during the test that a candidate has a characteristic which would be helpful in establishing distinctness. If such a claim is made and is supported by reliable technical data, a special test may be undertaken providing that a technically acceptable test procedure can be devised.

Special tests will be undertaken, with the agreement of the President of CPVO, where distinctness is unlikely to be shown using the characters listed in the protocol.

## 7. Standards for decisions

### a) **Distinctness**

A candidate variety will be considered to be distinct if it meets the requirements of Article 7 of Council Regulation No. 2100/94.

### b) **Uniformity**

For the assessment of uniformity a population standard of 1% with an acceptance probability of at least 95% should be applied.

For vegetatively propagated varieties, the candidate will be considered to be sufficiently uniform if the number of off-types does not exceed 2 in 50 plants examined.

For the assessment of uniformity of seed propagated varieties (Celosia is self pollinating), the rules are the same as for vegetatively propagated varieties. The candidate will be considered to be sufficiently uniform if the number of off-types does not exceed 2 in 50 plants examined.

### c) **Stability**

A candidate will be considered to be sufficiently stable when there is no evidence to indicate that it lacks uniformity.

## **IV - REPORTING OF RESULTS**

After each growing cycle the results will be summarised and reported to the CPVO in the form of a UPOV model interim report in which any problems will be indicated under the headings distinctness, uniformity and stability. Candidates may meet the DUS standards after one growing cycle but in some cases two or more growing cycles may be required. When tests are completed the results will be sent by the Examination Office to the CPVO in the form of a UPOV model final report.

If it is considered that the candidate complies with the DUS standards, the final report will be accompanied by a variety description in the format recommended by UPOV. If

not the reasons for failure and a summary of the test results will be included with the final report.

The CPVO must receive interim reports and final reports by the date agreed between the CPVO and the examination office.

Interim reports and final examination reports shall be signed by the responsible member of the staff of the Examination Office and shall expressly acknowledge the exclusive rights of disposal of CPVO.

## **V - LIAISON WITH THE APPLICANT**

If problems arise during the course of the test the CPVO should be informed immediately so that the information can be passed on to the applicant. Subject to prior agreement, the applicant may be directly informed at the same time as the CPVO particularly if a visit to the trial is advisable.

The interim report and final report shall be sent by the Examination Office to the CPVO.

\*\*\*\*\*

## ANNEXES TO FOLLOW

ANNEX I	<u>PAGE</u>
Table of characteristics .....	9
Legend:	
(+) See explanations on the Table of Characteristics	
Explanations on the table of characteristics .....	15
Literature .....	17

## ANNEX II

Technical questionnaire



## ANNEX I

### TABLE OF CHARACTERISTICS

CPVO N°	UPOV N°	Characteristics	Examples	Note	
1.	1.	<b>Plant: height</b>	Super Dwarf Kimono Orange	1	
			very short		
			short	Century Rose	3
			medium	Martine	5
			tall	Bombay	7
		very tall		9	
2.	2.	<b>Stem: thickness</b>	thin	Yellow Flame	3
			medium	Bombay Gold	5
			thick	Boscorsun	7
3.	3.	<b>Stem: presence of antho- cyanin colouration at base</b>	absent	Yellow Flame	1
			present	Bombay, Purple Martine	9
4.	4.	<b>Stem: intensity of antho- cyanin colouration at base</b>	Bombay Yellow, Yellow Flame	1	
			very weak		
			weak	Bombay Gold	3
			medium	Boscorcass	5
			strong	Bombay, Bombay Purple	7
		very strong	Enterprise Wine-red	9	
5.	5.	<b>Stem: colour of basal part</b>	light green	Enterprise White	1
			medium green		2
			dark green		3
			yellow	Celrayel, Martine Salmon	4
			orange	Bombay Salmon, Super Dwarf Kimono Orange	5
			pinkish red	Super Dwarf Kimono Cherry-red	6
			purple red	Celkopured, Enterprise Wine-red	7
6.	6.	<b>Stem: colour of upper part</b>	light green	Bombay Rose, Celrayel	1
			medium green	Martine Salmon	2
			dark green		3

CPVO N°	UPOV N°	Characteristics	Examples	Note
		yellow		4
		orange		5
		pinkish red	Celkopured	6
		purple red	Super Dwarf Kimono Red	7
<b>7.</b>	<b>7.</b>	<b>Stem: shape in cross section</b>		
		circular	Enterprise White	1
		flattened	Boscorcass	2
<b>8.</b>	<b>8.</b>	<b>Stem: ribs</b>		
		absent	Martine Pink, Startrek lilac	1
		present		9
<b>9.</b>	<b>9.</b>	<b>Stem: flowering laterals</b>		
		absent	Bombay Pink, Boscorsun	1
		present	Enterprise White, Startrek Lilac	9
<b>10.</b>	<b>10.</b>	<b>Petiole: length</b>		
		short	Celkopured	3
		medium	Bombay	5
		long	Enterprise White	7
<b>11.</b>	<b>11.</b>	<b>Petiole: presence of anthocyanin colouration</b>		
		absent	Bombay Rose, Celrayel	1
		present	Caripe, Celkopured	9
<b>12.</b>	<b>12.</b>	<b>Leaf blade: length</b>		
		short	Bombay Fire	3
		medium	Martine	5
		long	Bombay Rose, Caripe	7
<b>13.</b>	<b>13.</b>	<b>Leaf blade: width</b>		
		narrow	Bombay Fire	3
		medium	Bombay, Caripe, Martine, Salmon	5
		broad	Bombay Rose, Enterprise White	7
<b>14.</b>	<b>14.</b>	<b>Leaf blade: shape</b>		
		narrow elliptic	Sharon	1
		elliptic	Bombay Rose	2
		ovate	Bombay Purple	3
		broad ovate		4
<b>15.</b> (+)	<b>15.</b> (+)	<b>Leaf blade: shape of apex</b>		
		acute	Caripe, Sharon	1
		short acuminate	Bombay Salmon	2
		long acuminate	Celkopured	3

CPVO N°	UPOV N°	Characteristics	Examples	Note	
16.	16.	<b>Leaf blade: colour</b>	light green	Bombay Salmon, Enterprise White	1
			medium green		2
			dark green	Celkopured	3
			greenish red	Flamingo Feather	4
			red purple		5
17.	17.	<b>Leaf blade: presence of anthocyanin colouration of main vein</b>	absent	Enterprise White	1
			present	Celkopured	9
18.	18.	<b>Leaf blade: blistering</b>	absent or very weak	Bombay Pink	1
			weak	Celrayel, Enterprise Wine-red, Startrek Lilac	3
			medium	Bombay Rose, Celkopured	5
			strong	Enterprise White	7
			very strong		9
19.	19.	<b>Leaf blade: undulation of margin</b>	absent	Bombay Rose, Enterprise White	1
			present		9
20.	20.	<b>Leaf blade: curvature of longitudinal axis</b>	upwards		1
			straight		2
			downwards		3
21. (+)	21. (+)	<b>Inflorescence: main shape</b>	spicate	Enterprise Wine-red, Flamingo Feather	1
			plumose	Hiryu no.2, Kimono Cherry-red	2
			paniculate	Gerana Orange	3
			cristate	Bombay Rose, Martine	4
22.	22.	<b>Inflorescence: length of main inflorescence</b>	short	Enterprise Salmon, Martine Pink	3
			medium	Bombay Salmon	5
			long	Caripe	7
23.	23.	<b>Inflorescence: width of main inflorescence</b>	narrow	Caripe, Enterprise Wine-red	3
			medium	Bombay Fire,	5

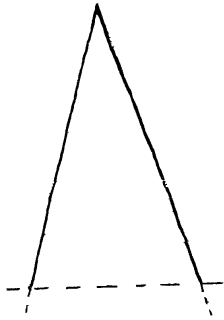
CPVO N°	UPOV N°	Characteristics	Examples	Note
		broad	Martine Pink Bombay Salmon, Boscorcur	7
24.	24.	<b>Inflorescence: colour</b>		1
		white	Enterprise White	
		green		2
		yellow	Martine Yellow	3
		orange	Super Dwarf Kimono Orange	4
		orange pink		5
		pink	Bombay Rose	6
		red	Red Chief	7
		purple		8
25. (+)	25. (+)	<b><u>Cristate group only:</u> inflorescence: colour of prophylls on edge of top</b>		
		white		1
		green		2
		yellow	Bombay Gold, Bombay Yellow	3
		orange	Bombay Orange	4
		orange pink	Boscorora	5
		pink	Bombay Rose	6
		red	Bombay Fire	7
		purple		8
26. (+)	26. (+)	<b><u>Cristate group only:</u> inflorescence: colour of prophylls on distal part (excluding edge of top)</b>		
		white	Bombay Gold, Bombay Yellow	1
		green		2
		yellow		3
		orange		4
		orange pink		5
		pink	Bombay Orange, Bombay Pink	6
		red		7
		purple	Bombay Fire	8
27.	27.	<b><u>Cristate group only:</u> inflorescence: degree of undulation (viewed from</b>		

CPVO N°	UPOV N°	Characteristics	Examples	Note	
		above)	weak	Bombay Rose	3
			medium	Bombay Fire, Celrayel	5
			strong	Bombay Dark-red, Boscorsun	7
28.	28.	<b>Tepal: shape</b>	elliptic	Enterprise White, Enterprise Wine-red	1
			ovate	Martine, Martine Scarlet	2
29.	29.	<b>Tepal: colour of median</b>	RHS Color Chart (indicate reference number) .....		
30.	30.	<b>Stamen: colour of filament</b>	white	Enterprise White, Martine Scarlet	1
			green		2
			yellow		3
			orange		4
			orange pink	Boscorkir	5
			pink	Bombay Orange, Canaima	6
			red		7
			purple	Bombay Purple, Boscorcass	8
31.	31.	<b>Pistil: colour of style</b>	white		1
			green		2
			yellow	Martine Yellow, Yellow Flame	3
			orange		4
			orange pink	Bombay Salmon, Bombay Velvet	5
			pink	Martine Salmon, Martine Scarlet	6
			red		7
			purple	Bombay Purple	8
32.	32.	<b>Pistil: colour of stigma</b>	white		1
			green		2
			yellow		3
			orange		4

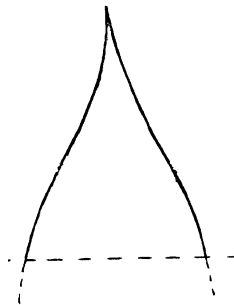
<b>CPVO N°</b>	<b>UPOV N°</b>	<b>Characteristics</b>	<b>Examples</b>	<b>Note</b>
		orange pink		5
		pink		6
		red		7
		purple		8

## EXPLANATIONS ON THE TABLE OF CHARACTERISTICS

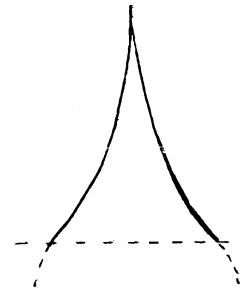
### Ad. 15: Leaf blade: shape of apex



1  
acute



2  
short acuminate



3  
long acuminate

### Ad. 21: Inflorescence: main shape



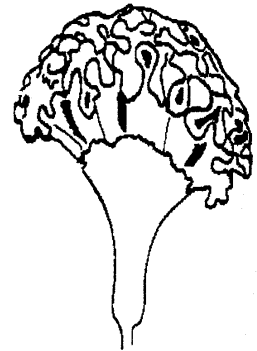
1  
spicate



2  
plumose



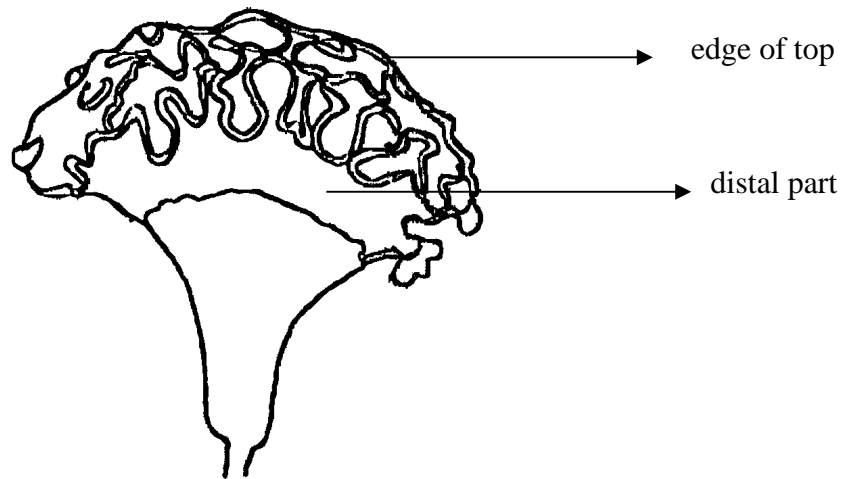
3  
paniculate



4  
cristate

Ad. 25: Cristate group only: inflorescence: colour of prophylls on edge of top

Ad. 26: Cristate group only: inflorescence: colour of prophylls on distal part (excluding edge of top)





## **LITERATURE**

No specific literature.

## **ANNEX II**

The Technical Questionnaire is available on the CPVO website under the following reference:  
CPVO-TQ/188/1