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- (54) **CHRYSANTHEMUM PLANT NAMED ‘DLFHAPU1’**
- (50) Latin Name: *Chrysanthemum X morifolium*
Varietal Denomination: **DLFHAPU1**
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A01H 5/02 (2018.01)
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- (52) **U.S. Cl.**
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See application file for complete search history.

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(57) **ABSTRACT**

A new and distinct cultivar of *Chrysanthemum* plant named ‘DLFHAPU1’, characterized by its upright plant habit; vigorous growth habit; dark green-colored leaves; uniform flowering habit; strong upright flowering stems; decorative spider-type inflorescences with white-colored ray florets; resistance to Fusarium; relative tolerance to low production temperatures; and good postproduction longevity.

2 Drawing Sheets

1

Botanical designation: *Chrysanthemum X morifolium*.
 Cultivar denomination: ‘DLFHAPU1’.

STATEMENT REGARDING PRIOR
 DISCLOSURES BY INVENTOR/APPLICANT &
 ASSIGNEE

A Columbian Plant Breeder’s Rights application for the instant plant was filed by the Assignee, Deliflor Royalties B.V. of Maasdijk, The Netherlands on Jun. 26, 2020. Foreign priority is not claimed to this application.

The Inventor/Applicant and Assignee assert that no publications nor advertisements relating to sales, offers for sale or public distribution occurred more than one year prior to the effective filing date of this application. Any information about the claimed plant would have been obtained from a direct or indirect disclosure from the Inventor/Applicant and/or the Assignee. Inventor/Applicant and Assignee claim a prior art exception under 35 U.S.C. 102(b)(1) for disclosure and/or sales prior to the filing date but less than one year prior to the effective filing date.

BACKGROUND OF THE INVENTION

The present invention relates to a new and distinct cultivar of *Chrysanthemum* plant, botanically known as *Chrysanthemum x morifolium*, typically grown as a cut flower *Chrysanthemum* and hereinafter referred to by the name ‘DLFHAPU1’.

The new *Chrysanthemum* plant is a product of a planned breeding program conducted by the Inventor in Maasdijk, The Netherlands. The objective of the breeding program is to create new cut flower *Chrysanthemum* plants with attractive inflorescences.

2

The new *Chrysanthemum* plant originated from a cross-pollination in January, 2014 of a proprietary selection of *Chrysanthemum x morifolium* identified as code number db 11359, not patented, as the female, or seed, parent with a proprietary selection of *Chrysanthemum x morifolium* identified as code number db 45020, not patented, as the male, or pollen, parent. The new *Chrysanthemum* plant was discovered and selected as a single flowering plant from within the progeny of the stated cross-pollination in a controlled greenhouse environment in Maasdijk, The Netherlands in September, 2014.

Asexual reproduction of the new *Chrysanthemum* plant by vegetative terminal cuttings since September, 2014 in a controlled greenhouse environment in Maasdijk, The Netherlands has shown that the unique features of this new *Chrysanthemum* plant are stable and reproduced true to type in successive generations of asexual reproduction.

SUMMARY OF THE INVENTION

Plants of the new *Chrysanthemum* have not been observed under all possible combinations of environmental conditions and cultural practices. The phenotype may vary somewhat with variations in environmental conditions such as temperature, daylength and light intensity, without, however, any variance in genotype.

The following traits have been repeatedly observed and are determined to be the unique characteristics of ‘DLFHAPU1’. These characteristics in combination distinguish ‘DLFHAPU1’ as a new and distinct *Chrysanthemum* plant:

1. Upright plant habit; vigorous growth habit.
2. Dark green-colored leaves.
3. Uniform flowering habit.
4. Strong upright flowering stems.

5. Decorative spider-type inflorescences with white-colored ray florets.
6. Resistant to *Fusarium* (*Fusarium oxysporum*).
7. Relatively tolerant to low production temperatures.
8. Good postproduction longevity.

Plants of the new *Chrysanthemum* differ primarily from plants of the female parent selection in ray floret shape as ray florets of plants of the new *Chrysanthemum* are quilled whereas ray florets of plants of the female parent selection are spatulate.

Plants of the new *Chrysanthemum* differ primarily from plants of the male parent selection in ray floret shape as ray florets of plants of the new *Chrysanthemum* are quilled whereas ray florets of plants of the male parent selection are spatulate. In addition, developing ray florets of plants of the new *Chrysanthemum* are more green in color than developing ray florets of plants of the male parent selection.

Plants of the new *Chrysanthemum* can be compared to plants of *Chrysanthemum X morifolium* 'Anastasia', disclosed in U.S. Plant Pat. No. 13,550. In side-by-side comparisons, plants of the new *Chrysanthemum* differ primarily from plants of 'Anastasia' in inflorescence size as plants of the new *Chrysanthemum* have smaller inflorescences than plants of 'Anastasia'. In addition, developing ray florets of plants of the new *Chrysanthemum* are more green in color than developing ray florets of plants of 'Anastasia'.

BRIEF DESCRIPTION OF THE PHOTOGRAPHS

The accompanying photographs illustrate the overall appearance of the new *Chrysanthemum* plant showing the colors as true as it is reasonably possible to obtain in colored reproductions of this type.

The photograph on the first sheet (FIG. 1) comprises a side perspective view of a typical flowering stem of 'DLFHAPU1' grown as a disbud-type cut flower.

The photograph on the second sheet (FIG. 2) is a close-up view of upper (left) and lower (right) surfaces of typical leaves (bottom of photographic sheet) and inflorescences (top of photographic sheet).

DETAILED BOTANICAL DESCRIPTION

The aforementioned photographs and following observations and measurements describe plants grown during the autumn in ground beds in a glass-covered greenhouse in Maasdijk, The Netherlands and under cultural practices typical of commercial cut *Chrysanthemum* production. Plants were initially given long day/short night treatments followed by short day/long night treatments to induce flower initiation and development. During the production of the plants, day temperatures ranged from 18° C. to 25° C., night temperatures ranged from 20° C. to 22° C. and light levels averaged 8 klux. Plants were grown as single-stem disbud-type plants (unless otherwise noted) and were ten weeks old when the photographs were taken and eleven weeks old when the description was taken. In the following description, color references are made to The Royal Horticultural Society Colour Chart, 2015 Edition, except where general terms of ordinary dictionary significance are used.

Botanical classification: *Chrysanthemum X morifolium* 'DLFHAPU1'.

Parentage:

Female, or seed, parent.—Proprietary selection of *Chrysanthemum x morifolium* identified as code number db 11359, not patented.

Male, or pollen, parent.—Proprietary selection of *Chrysanthemum x morifolium* identified as code number db 45020, not patented.

Propagation:

Type.—Terminal vegetative cuttings.

Time to initiate roots, summer.—About four days at temperatures about 20° C.

Time to initiate roots, winter.—About six days at temperatures about 20° C.

Time to produce a rooted young plant, summer.—About 13 days at temperatures about 20° C.

Time to produce a rooted young plant, winter.—About 15 days at temperatures about 20° C.

Root description.—Fine, fibrous; typically creamy white in color, actual color of the roots is dependent on substrate composition, water quality, fertilizers, substrate temperature and physiological age of roots.

Rooting habit.—Freely branching, medium density.

Plant description:

Plant and growth habit.—Herbaceous decorative spider-type cut flower that is typically grown as a single stem disbud-type; upright plant habit; vigorous growth habit and rapid growth rate.

Plant height, soil level to top of foliar plane.—About 59.1 cm.

Plant height, soil level to top of inflorescence plane.—About 66.1 cm.

Plant (spray) diameter.—About 22.6 cm.

Flowering stem length.—About 57.8 cm.

Flowering stem diameter.—About 7 mm.

Flowering stem internode length.—About 2.4 cm.

Flowering stem strength.—Strong.

Flowering stem aspect.—Erect.

Flowering stem texture and luster.—Densely pubescent; slightly glossy.

Flowering stem color, developing.—Close to 144A and 146B.

Flowering stem color, developed.—Close to 146A and 146C.

Leaf description.—Arrangement: Alternate; simple.

Length: About 12.1 cm. Width: About 7.5 cm. Shape, in overall outline: Ovate to oblong and obovate.

Apex: Abruptly acute, minute. Base: Attenuate. Margin: Palmately lobed, coarsely crenate to dentate;

sinuses convergent and deep. Texture and luster, upper surface: Densely pubescent, not rugose; moderately velvety; slightly glossy. Texture and luster,

lower surface: Densely pubescent, prominent venation; slightly velvety; matte. Venation pattern: Pinnate, reticulate. Color: Developing leaves, upper

surface: Close to 137A to 137B. Developing leaves, lower surface: Close to between 138A and 147B.

Fully developed leaves, upper surface: Close to between 139A and 147A; venation, close to 147B.

Fully developed leaves, lower surface: Close to 147B; venation, close to 146C. Petioles: Length:

About 2.4 cm. Diameter: About 3 mm by 3 mm. Strength: Moderately strong. Texture and luster,

upper and lower surfaces: Densely pubescent; moderately glossy. Color, upper surface: Close to 146B;

edges, close to 137A. Color, lower surface: Close to 147B; edges, close to 138A. Stipules: Quantity and

appearance: Two leafy stipules, opposite, at the petiole attachment to the stem. Length: About 1.2 cm.

Width: About 1.1 cm. Shape, in overall outline:

Broadly obovate; occasionally cleft with one to two shallow incisions distally. Texture and luster, upper surface: Densely pubescent; slightly glossy. Texture and luster, lower surface: Densely pubescent; matte. Color, upper surface: Close to between 139A and 147A. Color, lower surface: Close to 147B.

Inflorescence description:

Appearance.—Decorative spider-type inflorescence form with quill-shaped ray florets and tubular disc florets; inflorescences borne perpendicular to peduncles and face upright; ray and disc florets develop acropetally on a capitulum.

Fragrance.—Faintly fragrant; typical of *Chrysanthemums*.

Flowering response.—Under natural conditions, plant flower in the autumn/winter in the Northern Hemisphere; at other times of the year, inflorescence initiation and development can be induced under short day/long night conditions (at least 13.5 hours of darkness); uniform flowering habit and short response time, plants exposed to two weeks of long day/short night conditions after planting followed by photoinductive short day/long night conditions flower about 50 days later when grown as a disbud-type.

Postproduction longevity.—Good postproduction longevity; after a seven-day storage period, cut flowers will maintain good color and substance for about two weeks in an interior environment; inflorescences persistent.

Quantity of inflorescences.—Typically grown as a disbud-type, only the terminal inflorescence is allowed to developed; if grown as a spray-type, about 15 inflorescences develop per flowering stem.

Inflorescence size.—Diameter, grown as a disbud-type: About 12.2 cm. Depth (height), grown as a disbud-type: About 3.7 cm. Disc diameter, grown as a disbud-type: About 1.2 cm. Diameter, grown as a spray-type: About 9.9 cm. Depth (height), grown as a spray-type: About 4.1 cm. Disc diameter, grown as a spray-type: About 1.2 cm.

Receptacles.—Height: About 4 mm. Diameter: About 9 mm. Shape: Flattened globular. Color: Close to 145C.

Inflorescence buds.—Height: About 1.3 cm. Diameter: About 1.3 cm. Shape: Roughly spherical. Texture and luster: Distally, smooth and glabrous; proximally, moderately pubescent; slightly glossy. Color: Developing involucre bracts, close to 137A, 137B, 145B and 145C; developing ray florets, close to 157B.

Ray florets.—Quantity and arrangement: About 260 arranged in about nine whorls. Length: About 4.9 cm; varying from about 0.8 cm to 6.6 cm. Width: About 6 mm; varying from 2 mm to 8.5 mm. Shape: Quilled, tubular. Apex: Emarginate. Base: Fused. Margin, free-part: Entire; not undulate. Aspect: About 10° to 80° from vertical. Texture and luster, upper surface: Smooth, glabrous; slightly velvety; matte. Texture and luster, lower surface: Smooth, glabrous; slightly velvety; slightly glossy. Color: When opening, upper surface: Close to 157B; towards the apex, close to 157A; towards the base, close to 145B to 145C. When opening, lower surface: Close to between 145D and 150D; towards the

base, close to 145B to 145C. Fully opened, upper surface: Close to NN155D; towards the base, close to 145B to 145C; venation, similar to lamina colors; color does not change with subsequent development. Fully opened, lower surface: Close to NN155D; towards the base, close to N144C; venation, close to NN155C; color does not change with subsequent development.

Disc florets.—Quantity and arrangement: About 30, randomly positioned at the center of the receptacle. Length: About 6 mm. Diameter: About 1 mm. Shape: Lower 85% fused into a tube; upper 15% free. Apex: Narrowly acute. Margin, free-part: Entire. Texture and luster, inner and outer surfaces: Smooth, glabrous; glossy. Color, when opening, inner and outer surfaces: Close to 150D; distally, close to N144C. Color, fully opened, inner and outer surfaces: Close to 150D; distally, close to N144C.

Involucre bracts.—Quantity and arrangement: About 24 arranged in about two whorls. Length: About 1 cm. Width: About 5 mm. Shape: Ovate to narrowly ovate. Apex: Obtuse. Base: Cuneate. Margin: Entire. Texture and luster, upper surface: Smooth, glabrous; glossy. Texture and luster, lower surface: Moderately pubescent; matte. Color, upper surface: Close to 143A and 144A; lateral margins, translucent and close to 156A and 156B and apical margins tinged with close to 199B to 199C. Color, lower surface: Close to 143A; lateral margins, translucent and close to 156A and 156B and apical margins tinged with close to 199B to 199C.

Peduncles.—Length, terminal peduncle: About 4.2 cm. Diameter, terminal peduncle: About 3.5 mm. Length, third peduncle, grown as a spray-type: About 5.7 cm. Diameter, third peduncle, grown as a spray-type: About 3 mm. Strength: Strong. Aspect, terminal peduncle: Upright. Aspect, third peduncle, grown as a spray-type: About 40° from the flowering stem axis. Texture and luster: Densely pubescent; slightly glossy. Color: Close to between 137B and 143A.

Reproductive organs.—Androecium: Present on disc florets only. Quantity: About five per floret. Filament length: About 2 mm. Filament color: Close to N144D. Anther size: About 0.4 mm by 1 mm. Anther shape: Narrowly oblong. Anther color: Close to 5C. Pollen amount: None observed. Gynoecium: Present on both ray and disc florets. Quantity: One per floret. Pistil length: About 7 mm. Style length: About 6 mm. Style color: Close to 150B. Stigma diameter: About 1 mm. Stigma shape: Cleft to three-parted, decurrent. Stigma color: Close to 153D. Ovary color: Close to 157A.

Seeds and fruits.—To date, seed and fruit production have not been observed on plants of the new *Chrysanthemum*.

Pathogen & pest resistance: Plants of the new *Chrysanthemum* have been observed to be resistant to *Fusarium Wilt* (*Fusarium oxysporum* spp. *chrysanthemi* (strain FoNL1)). To date, plants of the new *Chrysanthemum* have not been observed to be resistant to pests and other pathogens common to *Chrysanthemum* plants grown under commercial conditions.

Temperature tolerance: Plants of the new *Chrysanthemum* have been observed to tolerate temperatures ranging from about -12° C. to 35° C. and to be suitable for USDA Hardiness Zones 8 to 10.

It is claimed:

1. A new and distinct *Chrysanthemum* plant named 'DLFHAPU1' as illustrated and described.

* * * * *



FIG. 1

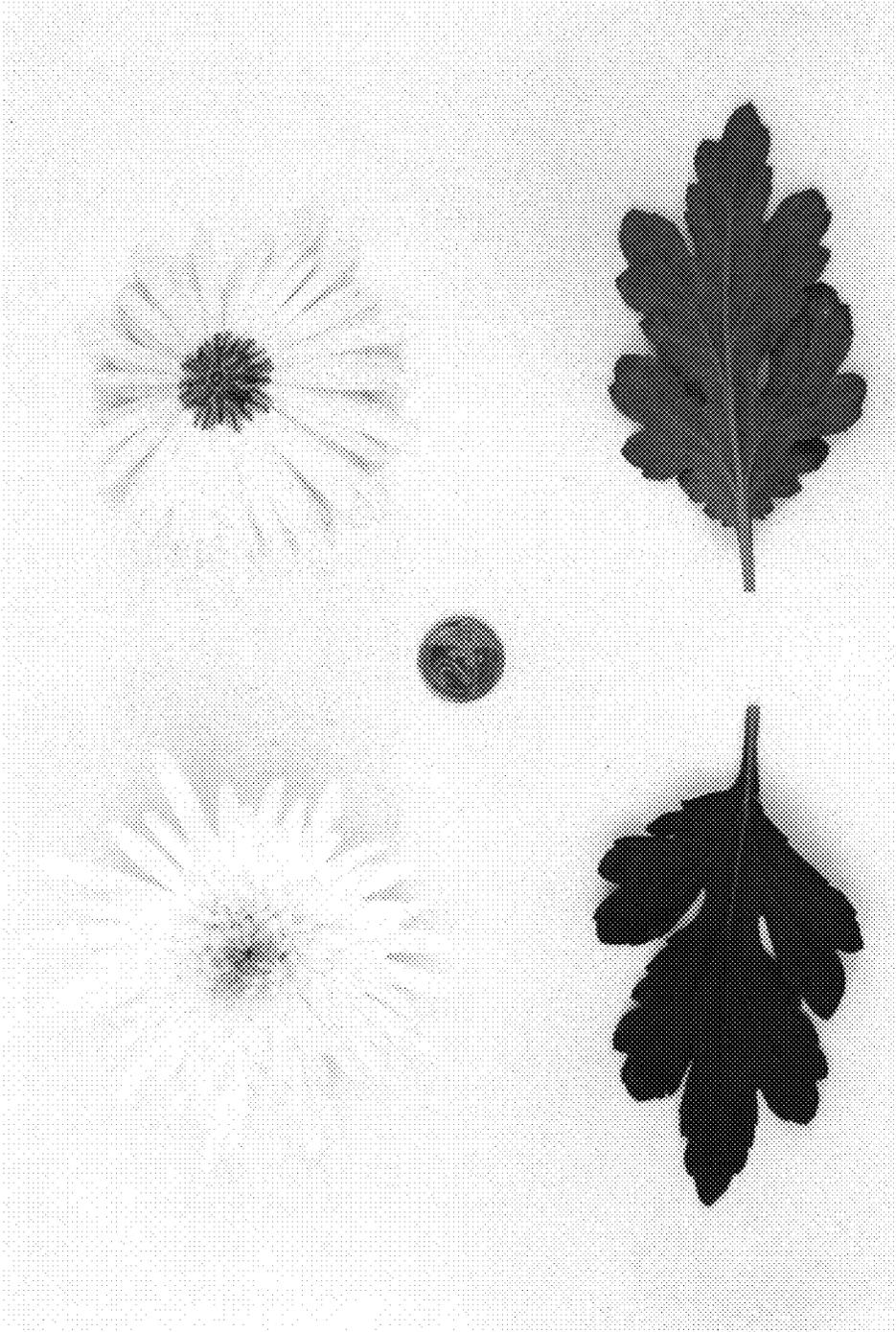


FIG. 2