



US00PP22699P2

(12) **United States Plant Patent**  
**Dekker**

(10) **Patent No.:** **US PP22,699 P2**

(45) **Date of Patent:** **May 1, 2012**

(54) **CHRYSANTHEMUM PLANT NAMED**  
**'DEKFIRMENICH'**

(50) Latin Name: *Chrysanthemum*×*morifolium*  
Varietal Denomination: **Dekfirmenich**

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 196 days.

(21) Appl. No.: **12/799,434**

(22) Filed: **Apr. 23, 2010**

(51) **Int. Cl.**  
**A01H 5/00** (2006.01)

(52) **U.S. Cl.** ..... **Plt./286**

(58) **Field of Classification Search** ..... **Plt./286**  
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

PP16,010 P2 \* 9/2005 Dekker ..... Plt./286  
PP18,277 P2 \* 12/2007 Dekker ..... Plt./286  
PP22,118 P2 \* 9/2011 Dekker ..... Plt./294

OTHER PUBLICATIONS

UPOV ROMGITM Computer Database, GTI Jouve Retrieval Software 2011/10 Citation for 'Dekfirmenich'.\*

\* cited by examiner

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(57) **ABSTRACT**

A new and distinct cultivar of *Chrysanthemum* plant named 'Dekfirmenich', characterized by its daisy-type inflorescences with red purple and white bi-colored ray florets; strong and upright flowering stems; uniform flowering habit; and good postproduction longevity.

**2 Drawing Sheets**

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Botanical designation: *Chrysanthemum*×*morifolium*.  
Cultivar denomination: 'DEKFIRMENICH'.

**BACKGROUND OF THE INVENTION**

The present invention relates to a new and distinct cultivar of *Chrysanthemum* plant, botanically known as *Chrysanthemum*×*morifolium*, commercially grown as a cut flower and hereinafter referred to by the name 'Dekfirmenich'.

The new *Chrysanthemum* plant is a product of a planned breeding program conducted by the Inventor in Hensbroek, The Netherlands. The objective of the breeding program is to create new daisy-type *Chrysanthemum* plants with large inflorescences, strong flowering stems, attractive and unique ray floret coloration and excellent postproduction longevity.

The new *Chrysanthemum* plant originated from a cross-pollination made by the Inventor in Hensbroek, The Netherlands on Oct. 8, 2007, of a proprietary selection of *Chrysanthemum*×*morifolium* identified as code number 40693, not patented, as the female, or seed, parent with a proprietary selection of *Chrysanthemum*×*morifolium* identified as code number 41257, not patented. The new *Chrysanthemum* plant was discovered and selected by the Inventor as a single flowering plant from within the progeny of the stated cross-pollination in a controlled greenhouse environment in Hensbroek, The Netherlands in May, 2008.

Asexual reproduction of the new *Chrysanthemum* plant by terminal cuttings in a controlled greenhouse environment in Hensbroek, The Netherlands since April, 2008, has shown that the unique features of this new *Chrysanthemum* plant are stable and reproduced true to type in successive generations.

**SUMMARY OF THE INVENTION**

Plants of the new *Chrysanthemum* have not been observed under all possible environmental conditions. The phenotype

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may vary somewhat with variations in environment 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 'Dekfirmenich'. These characteristics in combination distinguish 'Dekfirmenich' as a new and distinct *Chrysanthemum* plant:

1. Daisy-type inflorescences with red purple and white bi-colored ray florets.
2. Strong and upright flowering stems.
3. Uniform flowering habit.
4. Good postproduction longevity; plants maintain good substance for about 20 days in an interior environment.

Plants of the new *Chrysanthemum* differ from plants of the female parent selection in the following characteristics:

1. Plants of the new *Chrysanthemum* are less vigorous than plants of the female parent selection.
2. Plants of the new *Chrysanthemum* flower two days earlier than plants of the female parent selection.
3. Plants of the new *Chrysanthemum* have smaller inflorescences than plants of the female parent selection.
4. Plants of the new *Chrysanthemum* and the female parent selection differ in ray floret color as plants of the female parent selection have pink-colored ray florets.

Plants of the new *Chrysanthemum* differ from plants of the male parent selection in the following characteristics:

1. Plants of the new *Chrysanthemum* flower three days earlier than plants of the male parent selection.
2. Plants of the new *Chrysanthemum* have larger inflorescences than plants of the male parent selection.

Plants of the new *Chrysanthemum* can be compared to plants of *Chrysanthemum*×*morifolium* 'Dektimman', disclosed in U.S. Plant Pat. No. 16,010. In side-by-side comparisons conducted in Hensbroek, The Netherlands, plants of the new *Chrysanthemum* differed from plants of 'Dektimman' in the following characteristics:

1. Plants of the new *Chrysanthemum* had larger leaves than plants of 'Dektimman'.
2. Plants of the new *Chrysanthemum* were more freely flowering than plants of 'Dektimman'.
3. Plants of the new *Chrysanthemum* flowered two days earlier than plants of 'Dektimman'.
4. Ray florets of plants of the new *Chrysanthemum* were more upright than ray florets of plants of 'Dektimman'.

## BRIEF DESCRIPTION OF THE PHOTOGRAPHS

The accompanying colored photographs illustrate the overall appearance of the new *Chrysanthemum* plant. These photographs show the colors as true as it is reasonably possible to obtain in colored reproductions of this type. Colors in the photographs may differ slightly from the color values cited in the detailed botanical description which accurately describe the colors of the new *Chrysanthemum* plant.

The photograph on the first sheet comprises a side perspective view of a typical flowering stem of 'Dekfirmenich' grown as a spray-type.

The photograph on the second sheet comprises close-up views of the upper (top of photograph) and lower surfaces (bottom of photograph) of typical inflorescences and leaves of 'Dekfirmenich'.

## DETAILED BOTANICAL DESCRIPTION

The aforementioned photographs and following observations and measurements describe plants grown during the winter in Hensbroek, The Netherlands, under commercial practice in ground beds in a glass-covered greenhouse. Plants were initially given 1.5 weeks of 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 were about 7 kilolux. Plants were 8.5 weeks old when the photographs and the description were taken. In the following description, color references are made to The Royal Horticultural Society Colour Chart, 2007 Edition, except where general terms of ordinary dictionary significance are used.

Botanical classification: *Chrysanthemum*×*morifolium* 'Dekfirmenich'.

Parentage:

*Female, or seed, parent.*—Proprietary selection of *Chrysanthemum*×*morifolium* identified as code number 40693, not patented.

*Male, or pollen, parent.*—Proprietary selection of *Chrysanthemum*×*morifolium* identified as code number 41257, not patented.

Propagation:

*Type.*—Terminal vegetative cuttings.

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

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

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

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

*Root description.*—Fine, fibrous; light brown in color.

*Rooting habit.*—Freely branching, moderately dense.

Plant description:

*Appearance/growth habit.*—Herbaceous daisy-type cut flower that is typically grown as a spray-type; moderately vigorous growth habit.

*Flowering stem description.*—Aspect: Erect. Strength: Strong. Length: About 75 cm. Stem diameter: About 7 mm. Spray diameter: About 20 cm. Internode length: About 2 cm to 2.5 cm. Texture: Finely pubescent; longitudinally ridged. Color: Close to 146B to 146C.

*Foliage description.*—Arrangement: Alternate; simple. Length: About 5 cm to 11 cm. Width: About 4 cm to 8 cm. Apex: Mucronulate. Base: Attenuate. Margin: Palmately lobed, serrate; sinuses parallel to convergent. Texture, upper and lower surfaces: Pubescent, slightly rough; veins prominent on lower surface. Venation pattern: Pinnate, reticulate. Color: Developing leaves, upper surface: Close to 137C. Developing leaves, lower surface: Darker than 138B. Fully developed leaves, upper surface: Close to N137A; venation, close to 147B. Fully developed leaves, lower surface: Close to 147B; venation, close to 146B. Petiole: Length: About 1.5 cm to 2 cm. Diameter: About 2 mm to 2.5 mm. Texture, upper and lower surfaces: Slightly rough. Color, upper surface: Close to 146B to 146C. Color, lower surface: Close to 146B.

Inflorescence description:

*Appearance.*—Daisy-type inflorescence form with obovate to oval-shaped ray florets and tubular disc florets; inflorescences borne perpendicular to axillary laterals (peduncles); ray and disc florets develop acropetally on a capitulum.

*Fragrance.*—Slightly fragrant.

*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 response; plants exposed to 1.5 weeks of long day/short night conditions after planting followed by photoinductive short day/long night conditions flower about 48 days later when grown as a spray-type.

*Postproduction longevity.*—In an interior environment, inflorescences and foliage will maintain good color and substance for about 20 days; inflorescences persistent.

*Quantity of inflorescences.*—Grown as a spray type, about 15 inflorescences develop.

*Inflorescence size.*—Diameter: About 6 cm. Depth (height): About 2.5 cm. Disc diameter: About 1.3 cm. Receptacle height: About 3 mm to 4 mm. Receptacle diameter: About 4 mm to 5 mm. Receptacle color: Close to 145C.

*Inflorescence buds.*—Shape: Flattened spherical. Height: About 4 mm. Diameter: About 8 mm. Color: Close to 137C.

*Ray florets.*—Length: About 2 cm to 2.5 cm. Width: About 1.1 cm to 1.3 cm. Shape: Obovate to oval. Apex: Rounded to acute. Base: Attenuate. Margin: Entire. Texture, upper and lower surfaces: Smooth, glabrous; satiny. Number per inflorescence: About 25 to 30 arranged in about two whorls. Aspect: About 30° to 45° from horizontal. Color: When opening, upper surface: Close to 71A and towards the margins, close to NN155D. When opening, lower surface: Close to N78C and towards the margins, close to 155C. Fully

opened, upper surface: Close to 71A and towards the margins, close to NN155D; with development, color becoming closer to 72A and towards the margins, close to NN155B. Fully opened, lower surface: Close to 77C and towards the margins, close to NN155D; with development, color becoming closer to 77D and towards the margins, close to NN155B.

*Disc florets*.—Shape: Fused tubular, erect and elongated. Apex: Dentate. Length: About 4 mm to 6 mm. Diameter: About 1 mm. Number per inflorescence: About 250, massed at the center of the receptacle. Color: When opening: Apex: Close to 145A. Mid-section: Close to 13A. Base: Close to 145D. Fully opened: Apex: Close to 7A. Mid-section: Close to 145C. Base: Close to 150D.

*Involucral bracts*.—Length: About 8 mm to 10 mm. Width: About 2 mm to 6 mm. Shape: Oval-shaped. Apex: Rounded. Base: Rounded to truncate. Margin: Entire. Texture, upper and lower surfaces: Smooth, glabrous. Number per inflorescence: About 30 arranged in about two to three whorls. Color, upper surface: Close to 137C. Color, lower surface: Close to 137B.

*Peduncles*.—Length, terminal peduncle: Terminal inflorescence bud removed to enhance spray development. Length, fourth peduncle: About 9 cm to 11 cm. Length, seventh peduncle: About 14 cm. Diameter: About 2 mm. Strength: Strong. Angle: About 30° from the flowering stem axis. Texture: Pubescent. Color: Close to 146B.

*Reproductive organs*.—Androecium: Not observed. Gynoecium: Present on both ray and disc florets. Style length: About 4 mm to 5 mm. Style color: Greenish. Stigma color: Yellow.

*Seed/fruit*.—Seed and fruit production have not been observed.

Disease/pest resistance: Resistance to pathogens and pests common to *Chrysanthemums* has not been observed on plants grown under commercial conditions.

It is claimed:

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

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