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(12) **United States Plant Patent**
van Dijk

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- (54) **HYDRANGEA PLANT NAMED ‘HIHAI’**
- (50) Latin Name: *Hydrangea macrophylla*
Varietal Denomination: **HIHAI**
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- (73) Assignee: **HI BREEDING B.V.**, De Lier (NL)
- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
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A01H 6/48 (2018.01)

- (52) **U.S. Cl.**
USPC **Plt./250**
CPC **A01H 6/48** (2018.05)
- (58) **Field of Classification Search**
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See application file for complete search history.

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(57) **ABSTRACT**
A new and distinct cultivar of *Hydrangea* plant named ‘HIHAI’, characterized by its relatively compact, upright and broadly spreading plant habit; freely branching habit; strong and sturdy stems; freely and reblooming flowering habit; large and dense inflorescences with white-colored sterile flowers; and good post-production longevity.

2 Drawing Sheets

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Botanical designation: *Hydrangea macrophylla*.
Cultivar denomination: ‘HIHAI’.

CROSS-REFERENCED TO CLOSELY-RELATE
APPLICATIONS

Title: *Hydrangea* Plant Named ‘HIFLA’
Applicant: Roy Robin van Dijk
Filed: Concurrently with the instant application

STATEMENT REGARDING PRIOR
DISCLOSURES BY INVENTOR/APPLICANT &
ASSIGNEE

An European Community Plant Breeder’s Rights application for the instant plant was filed by the Assignee, Hi Breeding B.V. of De Lier, The Netherlands, on Sep. 9, 2019, application number 2019/2201. 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 exemption 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 *Hydrangea* plant, botanically known as *Hydrangea macrophylla*, commercially referred to as a mophead-type *Hydrangea* and hereinafter referred to by the name ‘HIHAI’.

The new *Hydrangea* plant is a product of a planned breeding program conducted by the Inventor in De Lier, The Netherlands. The objective of the breeding program is to

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create new sturdy and strong *Hydrangea* plants with attractive inflorescences and good postproduction longevity.

The new *Hydrangea* plant originated from a cross-pollination in March, 2013 of a proprietary selection of *Hydrangea macrophylla* identified as code number 1340, not patented, as the female, or seed, parent with a proprietary selection of *Hydrangea macrophylla* identified as code number 1014, not patented, as the male, or pollen, parent. The new *Hydrangea* 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 De Lier, The Netherlands in April, 2015.

Asexual reproduction of the new *Hydrangea* plant by terminal vegetative cuttings since June, 2016 in a controlled greenhouse environment in De Lier, The Netherlands has shown that the unique features of this new *Hydrangea* plant are stable and reproduced true to type in successive generations of asexual reproduction.

SUMMARY OF THE INVENTION

Plants of the new *Hydrangea* 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 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 ‘HIHAI’. These characteristics in combination distinguish ‘HIHAI’ as a new and distinct *Hydrangea* plant:

1. Relatively compact, upright and broadly spreading plant habit.
2. Freely branching habit.
3. Strong and sturdy stems.
4. Freely flowering habit.
5. Large and dense inflorescences with white-colored sterile flowers.
6. Good post-production longevity.

Plants of the new *Hydrangea* can be compared to plants of the female parent selection. Plants of the new *Hydrangea* differ primarily from plants of the female parent selection in the following characteristics:

1. Plants of the new *Hydrangea* are more compact than and not as vigorous as plants of the female parent selection.
2. Stems of plants of the new *Hydrangea* are sturdier than stems of plants of the female parent selection.
3. Inflorescences of plants of the new *Hydrangea* are more durable than inflorescences of plants of the female parent selection.

Plants of the new *Hydrangea* can be compared to plants of the male parent selection. Plants of the new *Hydrangea* differ primarily from plants of the male parent selection in the following characteristics:

1. Plants of the new *Hydrangea* are more compact than and not as vigorous as plants of the male parent selection.
2. Stems of plants of the new *Hydrangea* are sturdier than stems of plants of the male parent selection.
3. Inflorescences of plants of the new *Hydrangea* are more durable than inflorescences of plants of the male parent selection.

Plants of the new *Hydrangea* can be compared to plants of *Hydrangea macrophylla* 'HIFLA', disclosed in a U.S. Plant Patent application filed concurrently. Plants of the new *Hydrangea* differ primarily from plants of 'HIFLA' in the following characteristics:

1. Plants of the new *Hydrangea* have smaller leaves than plants of 'HIFLA'.
2. Sterile flower sepals of plants of the new *Hydrangea* are white in color whereas sterile flower sepals of plants of 'HIFLA' are red purple in color.

Plants of the new *Hydrangea* can also be compared to plants of *Hydrangea macrophylla* 'Wudu', not patented. In side-by-side comparisons, plants of the new *Hydrangea* differed primarily from plants of 'Wudu' in the following characteristics:

1. Plants of the new *Hydrangea* are more compact than and not as vigorous as plants of 'Wudu'.
2. Inflorescences of plants of the new *Hydrangea* are more hardy than inflorescences of plants of 'Wudu'.

BRIEF DESCRIPTION OF THE PHOTOGRAPHS

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

The photograph on the first sheet is a side perspective view of a typical flowering plant of 'HIHAI' grown in a container.

The photograph at the top of the second sheet is a close-up view of a typical inflorescence of 'HIHAI', and the photograph at the bottom of the second sheet is a close-up view of typical leaves of 'HIHAI'.

DETAILED BOTANICAL DESCRIPTION

Plants used in the aforementioned photographs and in the following description were grown during the autumn in 14-cm containers in a glass-covered greenhouse in De Lier,

The Netherlands and under cultural practices typical of commercial *Hydrangea* production. During the production of the plants, day temperatures ranged from 20° C. to 35° C., night temperatures ranged from 10° C. to 22° C. and light levels were about 4,000 lux for 16 hours per day. Plants of the new *Hydrangea* were pinched one time and were two years old when the photographs and description were 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. Plants are not typically "blued" (treated with aluminum sulfate).

Botanical description: *Hydrangea macrophylla* 'HIHAI'.

Parentage:

Female, or seed, patent.—Proprietary selection of *Hydrangea macrophylla* identified as code number 1340, not patented.

Male, or pollen, patent.—Proprietary selection of *Hydrangea macrophylla* identified as code number 1014, not patented.

Propagation:

Type cutting.—By vegetative terminal cuttings.

Time to initiate roots, summer.—About twelve days at temperatures about 22° C.

Time to initiate roots, winter.—About two weeks at temperatures about 20° C.

Time to produce a rooted young plant, summer.—About four weeks at temperatures about 22° C.

Time to produce a rooted young plant, winter.—About 30 days at temperatures about 19° C.

Root description.—Medium in thickness, fibrous; typically white in color, actual color of the roots is dependent on substrate composition, water quality, fertilizer type and formulation, substrate temperature and physiological age of roots.

Rooting habit.—Moderately freely branching; medium density.

Plant description:

Plant and growth habit.—Relatively compact, upright, broadly outwardly spreading and mounding plant habit; flattened globular in overall shape; strong and sturdy stems; moderately vigorous growth habit and moderate growth rate; about six months from propagation are required to produce a finished flowering plant.

Plant height.—About 29.5 cm.

Plant diameter or area of spread.—About 43.6 cm.

Lateral branch description:

Branching habit.—Freely branching habit with about nine lateral branches per plant; pinching is not required, but will enhance lateral branch development.

Length.—About 13.9 cm.

Diameter.—About 5 mm.

Internode length.—About 5.5 cm.

Strength.—Strong, sturdy.

Aspect.—About 60° from vertical.

Texture.—Smooth, glabrous; fully developed, woody.

Color, developing.—Close to between 144A and 144B.

Color, fully developed.—Close to 144A; woody, close to N199B and N199C.

Lenticels.—Density: Medium to dense. Length: About 1.5 mm. Width: About 0.5 mm. Color: Close to 183A.

Leaf description:

Arrangement.—Opposite, simple.

Length.—About 10.1 cm.

Width.—About 7.5 cm.

Shape.—Broadly ovate. 5

Apex.—Apiculate.

Base.—Short attenuate.

Margin.—Coarsely serrate.

Texture and luster, upper surface.—Slightly rugose, 10
glabrous; glossy.

Texture and luster, lower surface.—Moderately rugose,
glabrous; somewhat glossy.

Venation pattern.—Pinnate.

Color.—Developing leaves, upper surface: Close to 15
between 143B and 144A. Developing leaves, lower
surface: Close to 144B. Fully developed leaves,
upper surface: Slightly darker than NN137A; vena-
tion, close to 144A. Fully developed leaves, lower
surface: Slightly lighter than 147B; venation, close 20
to 146D.

Petioles.—Length: About 2.4 cm. Diameter: About 3
mm. Texture and luster, upper surface: Smooth,
glabrous; slightly glossy. Texture and luster, lower
surface: Smooth, glabrous; slightly to moderately 25
glossy. Color, upper and lower surfaces: Close to
144A.

Flower description:

Flower type and habit.—Showy rotate sterile flowers 30
and small, inconspicuous rotate fertile flowers
arranged on mophead-type terminal panicles;
panicles flattened globular in shape; sterile flowers
face upright to outwardly and slightly drooping, and
fertile flowers mostly upright. 35

Fragrance.—None detected.

Natural flowering season.—In the garden, plants
flower continuously from the late spring to late
summer in The Netherlands.

Flower longevity.—Good postproduction longevity; 40
sterile flowers maintain good substance for about six
weeks on the plant, sterile flowers persistent; fertile
flowers last about three days on the plant, fertile
flowers not persistent.

Quantity of flowers.—Freely flowering habit; about 150 45
sterile flowers per panicle and about 40 fertile flow-
ers per panicle.

Panicle height.—About 9.4 cm.

Panicle diameter.—About 15.7 cm.

Sterile flower buds.—Length: About 6 mm. Diameter: 50
About 1.2 cm. Shape: Cup-shaped. Color: Close to
145B.

Fertile flower buds.—Length: About 2 mm. Diameter:
About 2.5 mm. Shape: Flattened globular. Color:
Close to 145A; distally, close to 144A. 55

Sterile flower diameter.—About 3.6 cm.

Sterile flower depth (height).—About 1.7 cm.

Fertile flower diameter.—About 1 cm.

Fertile flower depth (height).—About 4 mm.

Petals, sterile flowers.—Quantity and arrangement: 60
Four in a single whorl. Length: About 3 mm. Width:
About 1.5 mm. Shape: Broadly ovate, concave.
Apex: Acute. Base: Cuneate. Margin: Entire. Texture
and luster, upper and lower surfaces: Smooth, gla-
brous; matte. Color: When opening, upper and lower 65
surfaces: Close to NN155D. Fully opened, upper and

lower surfaces: Close to NN155D; color does not
change with development.

Petals, fertile flowers.—Quantity and arrangement:
Five in a single whorl. Length: About 3.5 mm.
Width: About 2 mm. Shape: Ovate, moderately con-
cave. Apex: Acute. Base: Cuneate. Margin: Entire.
Texture and luster, upper and lower surfaces:
Smooth, glabrous; matte. Color: When opening,
upper surface: Close to 157D. When opening, lower
surface: Close to 155C; distally, close to 157D. Fully
opened, upper and lower surfaces: Close to 155C;
color does not change with development.

Sepals, sterile flowers.—Quantity and arrangement:
Typically four or five in a single whorl. Length:
About 1.8 cm. Width: About 2.1 cm. Shape: Reni-
form to broadly rhomboidal; slightly to moderately
twisting. Apex: Obtuse to broad and bluntly acute.
Base: Cuneate. Margin: Entire; strongly and coarsely
undulate. Texture and luster, upper and lower sur-
faces: Smooth, glabrous; matte. Color: When open-
ing, upper and lower surfaces: Close to NN155D;
distally, close to 145A. Fully opened, upper surface:
Close to NN155D; distally, slightly darker than
NN155D; with development, distally becoming
blotched and marbled with closer to 144A to 144B.
Fully opened, lower surface: Close to NN155D;
distally, close to 157D; with development, distally
becoming blotched and marbled with closer to 144A
to 144C.

Sepals, fertile flowers.—Quantity and arrangement:
Five in a single whorl. Length: About 4 mm. Width:
About 3 mm. Shape: Broadly ovate to broadly obo-
vate. Apex: Bluntly acute to obtuse. Base: Broadly
cuneate. Margin: Entire. Texture and luster, upper
and lower surfaces: Smooth, glabrous; matte. Color:
When opening, upper and lower surfaces: Close to
NN155D strongly blotched and marbled with close
to 144B to 144C. Fully opened, upper surface: Close
to NN155D strongly blotched and marbled with
close to 144A to 144B; color does not change with
development. Fully opened, lower surface: Close to
NN155D strongly blotched and marbled with close
to 144A to 144C; color does not change with devel-
opment.

Pedicels, sterile flowers.—Length: About 2.1 cm.
Diameter: About 1.25 mm. Strength: Moderately
strong. Aspect: About 40° from peduncle. Texture
and luster: Densely pubescent; matte. Color: Close to
NN155C; proximally closer to 145C.

Pedicels, fertile flowers.—Length: About 8 mm. Diam-
eter: About 1 mm. Strength: Moderately strong.
Aspect: About 30° from peduncle. Texture and lus-
ter: Moderately pubescent; matte. Color: Close to
145C.

Reproductive organs, sterile flowers.—Stamens: Quan-
tity per flower: Eight. Filament length: About 2 mm.
Filament color: Close to NN155D. Anther length:
About 0.5 mm. Anther shape: Broadly oblong.
Anther color: Close to 155A. Pollen amount: Mod-
erate. Pollen color: Close to 157C. Pistils: Pistil
quantity per flower: Two or three. Pistil length:
About 0.5 mm. Stigma shape: Club-shaped. Stigma
color: Close to NN155D. Style length: About 0.5
mm. Style color: Close to NN155D. Ovary color:
Close to 155A.

Reproductive organs, fertile flowers.—Stamens: Quantity per flower: Ten. Filament length: About 2 mm. Filament color: Close to NN155D. Anther shape: Broadly oblong. Anther length: About 0.5 mm. Anther color: Close to 155A. Pollen amount: Moderate. Pollen color: Close to 157C. Pistils: Pistil quantity per flower: Four. Pistil length: About 0.5 mm. Stigma shape: Club-shaped. Stigma color: Close to NN155D. Style length: About 2.5 mm. Style color: Close to NN155D. Ovary color: Close to 145D.

Seeds.—To date, seed development has not been observed on plants of the new *Hydrangea*.

Pathogen & pest resistance: Under commercial production conditions, plants of the new *Hydrangea* have not been observed to be resistant to pathogens and pests common to *Hydrangea* plants.

5 Temperature tolerance: Plants of the new *Hydrangea* have been shown to be suitable for USDA Hardiness Zones 5 through 9.

It is claimed:

10 1. A new and distinct *Hydrangea* plant named 'HIHAI' as illustrated and described.

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