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Conev et al.

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(54) **DWARF GRAPEVINE 'VDG003'**

(50) Latin Name: ***Vitis vinifera***
Varietal Denomination: **VDG003**

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A01H 5/08 (2006.01)

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(58) **Field of Classification Search**
USPC Plt./207
See application file for complete search history.

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(57) **ABSTRACT**

The invention is a new and distinct ornamental dwarf grapevine variety denominated 'VDG003'. The new grapevine carries the REN1 gene for resistance to powdery mildew and is characterized by, no visible hair on the young leaves, having relatively smooth leaf surface, having shallow and open lobe sinuses, and having small to medium yellow green berries.

6 Drawing Sheets

Latin name of the genus and species of the plant claimed: *Vitis vinifera.*

Variety denomination: 'VDG003'.

BACKGROUND OF THE INVENTION

The new and distinct dwarf ornamental grapevine described and claimed herein originated from a cross between 'Pixie'™ and unknown *Vitis vinifera* male parent, the male parent having introgressed therein a REN1 gene for powdery mildew resistance originating from 'Kishmish vatkana'.

The female parent 'Pixie'™ is a natural dwarf ornamental grapevine (*Vitis vinifera*) derived from periclinal L1/L2 chimera 'Pinot Meunier' with dark purple berry skin. 'Pixie'™ is the only known naturally dwarf grapevine in the public domain.

The pollen parent is an unknown *Vitis vinifera* line having a REN1 gene for powdery mildew resistance introgressed therein. The REN1 gene originates from 'Kishmish vatkana', an old *Vitis vinifera* variety from Uzbekistan with light purple berry skin. 'Kishmish vatkana' carries the REN1 gene for powdery mildew resistance.

The present variety of dwarf grapevine was first produced by controlled hybridization. The original cross was done at Vineland Research and Innovations Centre, Vineland Station, Ontario, Canada on Nov. 22, 2010.

'VDG003' was first successfully asexually propagated by single node softwood cuttings at the Vineland Research and Innovations Centre, Vineland Station, Ontario, Canada on May 31, 2013. It is being maintained on its own roots in a container in a Canadian Food Inspection Agency certified

greenhouse facility at Vineland Research and Innovation Centre, Vineland Station, Ontario, Canada.

SUMMARY OF THE INVENTION

The new grapevine 'VDG003' has the following major distinguishing characteristics. 'VDG003' carries the REN1 gene for resistance to powdery mildew and has sparse to medium prostrate hairs on tip of young shoots, has no prostrate hairs between main veins on lower side of the blade of young leaves, has weak to medium blistering of upper side of blade of mature leaves, has predominantly three lobes on mature leaf, has shallow upper lateral sinuses of mature leaves, has open lobes of upper lateral sinuses of mature leaves, and has small to medium yellow-green berries

In contrast, the parent plant 'Pixie'™ does not carry the REN1 gene for resistance to powdery mildew and has very dense prostrate hairs on tip of young shoots, has very dense hairs between main veins on lower side of the blade of young leaves, has strong blistering of upper side of blade of mature leaves, has predominantly five lobes on mature leaf, has medium to deep upper lateral sinuses of mature leaves, has closed lobes of upper lateral sinuses of mature leaves, and has small dark purple berries.

The characteristics most useful in distinguishing 'VDG003' from 'Pixie'™ are prostrate hairs on tip; young leaf: prostrate hairs between main veins on lower side of blade; mature leaf: blistering of upper side of blade; mature leaf: number of lobes; mature leaf: depth of upper lateral sinuses; and, berry: color of skin (without bloom).

BRIEF DESCRIPTION OF THE DRAWING

The accompanying photographic illustration illustrates in full color 'VDG003'. The colors are as nearly true as reason-

ably possible in color representation of this type. Colors in the photographs may differ from the color values cited in the detailed botanical description below, which accurately describes the colors of the new dwarf grapevine.

FIG. **1** shows vigor and foliage color of 'VDG003', in comparison to the female parent 'Pixie'™.

FIG. **2** shows upper side of mature leaf blades of 'VDG003', in comparison to the female parent 'Pixie'™.

FIG. **3** shows lower side of mature leaf blade of 'VDG003', in comparison to the female parent 'Pixie'™.

FIG. **4** shows upper side of young shoot of 'VDG003', in comparison to the female parent 'Pixie'™.

FIG. **5** shows fruiting habit, berry color of skin and bunch density of 'VDG003'.

FIG. **6** shows fruiting habit, berry color of skin and bunch density of the female parent 'Pixie'™.

DETAILED BOTANICAL DESCRIPTION OF THE INVENTION

'VDG003' is a dwarf ornamental grapevine with edible fruit. 'VDG003' has inherited the undetermined growth pattern and the dwarf growth habit from the mother variety ('Pixie'™). The internodes are 10-15 mm in length (approximately 10-20 times shorter compared to standard *Vitis vinifera* cultivars).

The variety is uniform and stable. No off-types, variants or mutations have been found to date.

The R.H.S. Colour Chart of The Royal Horticultural Society has been used for colour identification of foliage, berry skin and shoot. The description is based on the observation of 10 plants growing in containers on their own roots in a greenhouse facility at Vineland Research and Innovation Centre, Vineland Station, Ontario, Canada during the year 2014.

Time of bud burst: Not available as the plants were grown in a greenhouse.

Young shoot:

Openness of tip.—Closed.

Prostrate hairs on tip.—Sparse or medium.

Anthocyanin coloration on prostrate hairs on tip.—Absent or very weak.

Young leaf:

Color of upper side of blade.—Green (N137-C).

Prostrate hairs between main veins on lower side of blade.—Absent or very sparse.

Shoot:

Color of dorsal side of internodes.—Green and red.

Color of ventral side of internodes.—Green and red.

Color of dorsal side of nodes.—Green and red.

Color of ventral side of nodes.—Green and red.

Length of tendril.—Very short (very scarce).

Flower:

Sexual organs.—Fully developed stamens and fully developed gynoecium.

Mature leaf:

Size of blade.—Small to very small.

Shape of blade.—Circular.

Blistering of upper side of blade.—Medium to weak.

Number of lobes.—Three.

Depth of upper lateral sinuses.—Shallow.

Arrangement of lobes of upper lateral sinuses.—Open.

Arrangement of lobes of petiole sinus.—Slightly overlapped.

Length of teeth.—Short.

Ratio length/width of teeth.—Small.

Shape of teeth.—Both sides convex.

Proportion of main veins on upper side with anthocyanin coloration.—Absent or very low.

Prostrate hairs between main veins on lower side of blade.—Absent or very sparse.

Erect hairs on main veins on lower side of blade.—Absent or very sparse.

Length of petiole compared to length of middle vein.—Much shorter.

Time of beginning of berry ripening: Not available as the plants were grown in a greenhouse.

Bunch:

Size (peduncle excluded).—Very small.

Density.—Medium.

Length of peduncle of primary bunch.—Medium to long.

Berry:

Size.—Small to medium.

Shape.—Globose.

Color of skin (without bloom).—Yellow green (153-B).

Ease of detachment from pedicel.—Moderately easy.

Thickness of skin.—Medium.

Anthocyanin coloration of flesh.—Absent or very weak.

Firmness of flesh.—Moderately firm.

Particular flavor.—None.

Formation of seeds.—Complete.

Woody shoot:

Main color.—Orange brown (174-C).

Genotypic analysis: Genotypic lab analysis confirmed the hybrid status of 'VDG003'. It was confirmed that it carries the REN1 gene for resistance to powdery mildew, inherited from the male parent. Polymerase chain reaction (PCR) was performed on template DNA extracted from 'VDG003' using microsatellite marker primers that were polymorphic between 'Pixie'™ and the male parent. The microsatellite markers confirmed that the new variety 'VDG003' is a hybrid of the parents. The REN1 gene was detected by PCR on template DNA extracted from VDG003 based on PCR primers described in Coleman C, et al. *BMC Genetics*. 2009, 10: 89.

Biometric data of 'VDG003' is compared to that of the mother variety ('Pixie'™) in Table 1.

TABLE 1

Biometric data	'VDG003'	'Pixie' ™
Average size of mature leaf blade, L × W, mm	91 × 89	106 × 107
Length of petiole/length of main vein, mm	29/62	42/77
Height of central stem, cm	103	98
Average internode size, mm	15	13
First bunch set at node number	35	25
Average peduncle length, mm	48.0	40.5
Average number of berries per bunch	11.2	21.6
Average bunch weight, g	27.4	18.9
Average berry weight, g	1.5	0.9
Average berry size, mm	14.7	12.7
Average number of seeds/berry	1.5	2.7
Sugar content, °Bx	22.5	21.3

The 'VDG003' variety has not been observed under all possible environmental conditions to date. Accordingly, it is possible that the phenotypic expression may vary somewhat with changes in light intensity and duration, cultural practices, and other environmental conditions.

What is claimed:

1. A new and distinct variety of dwarf ornamental grapevine substantially as herein illustrated and described.

* * * * *

FIG. 1

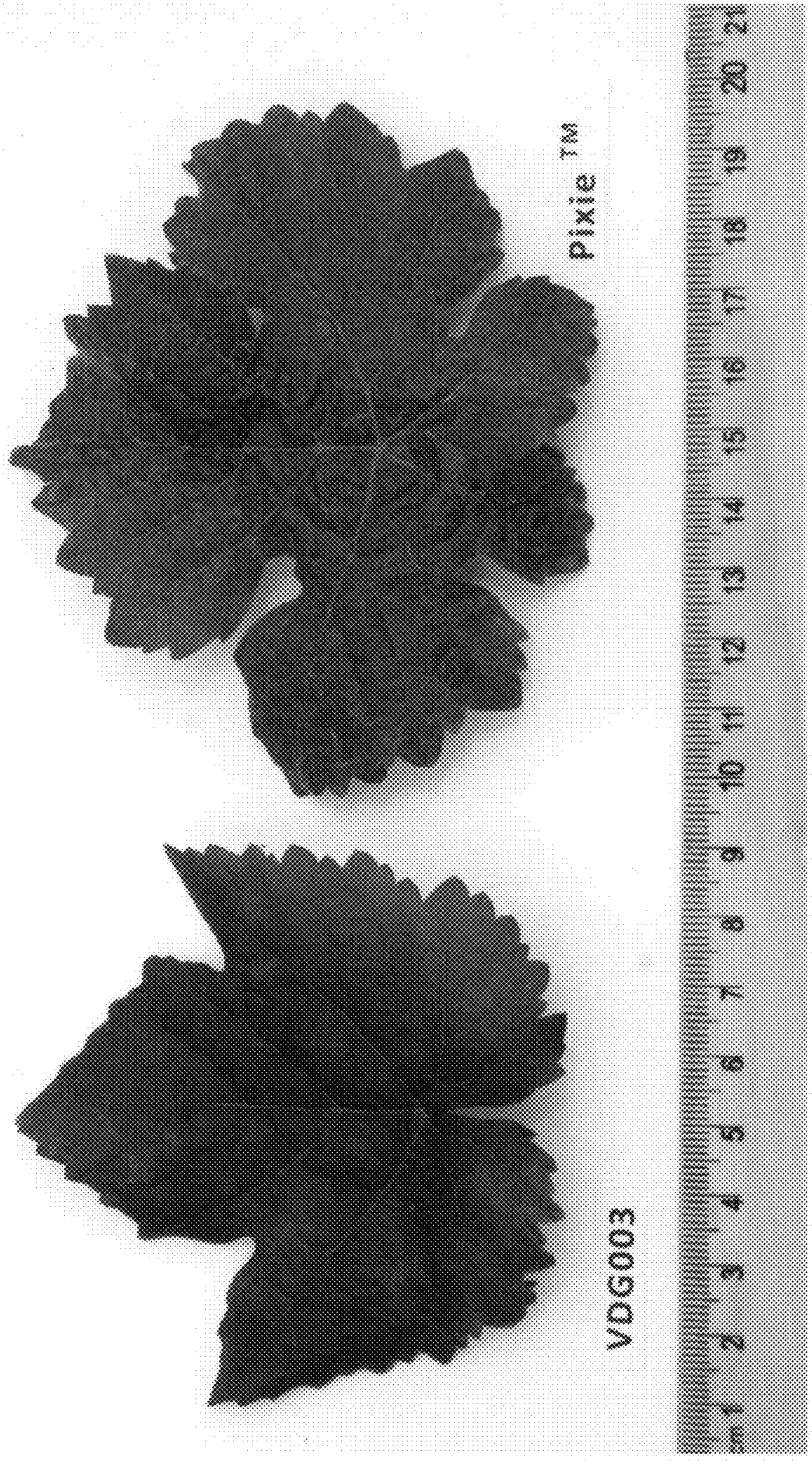

FIG. 2

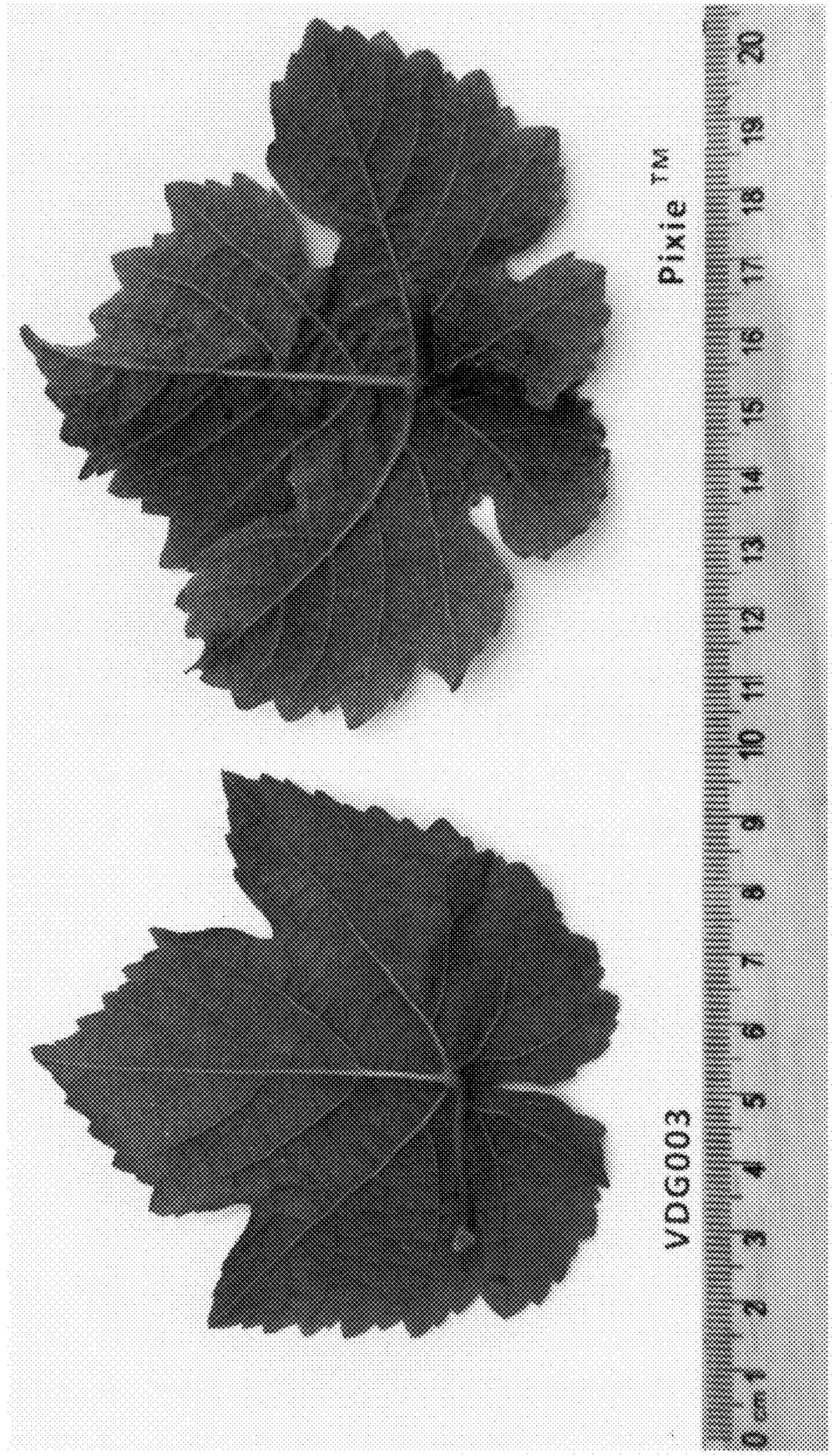

FIG. 3

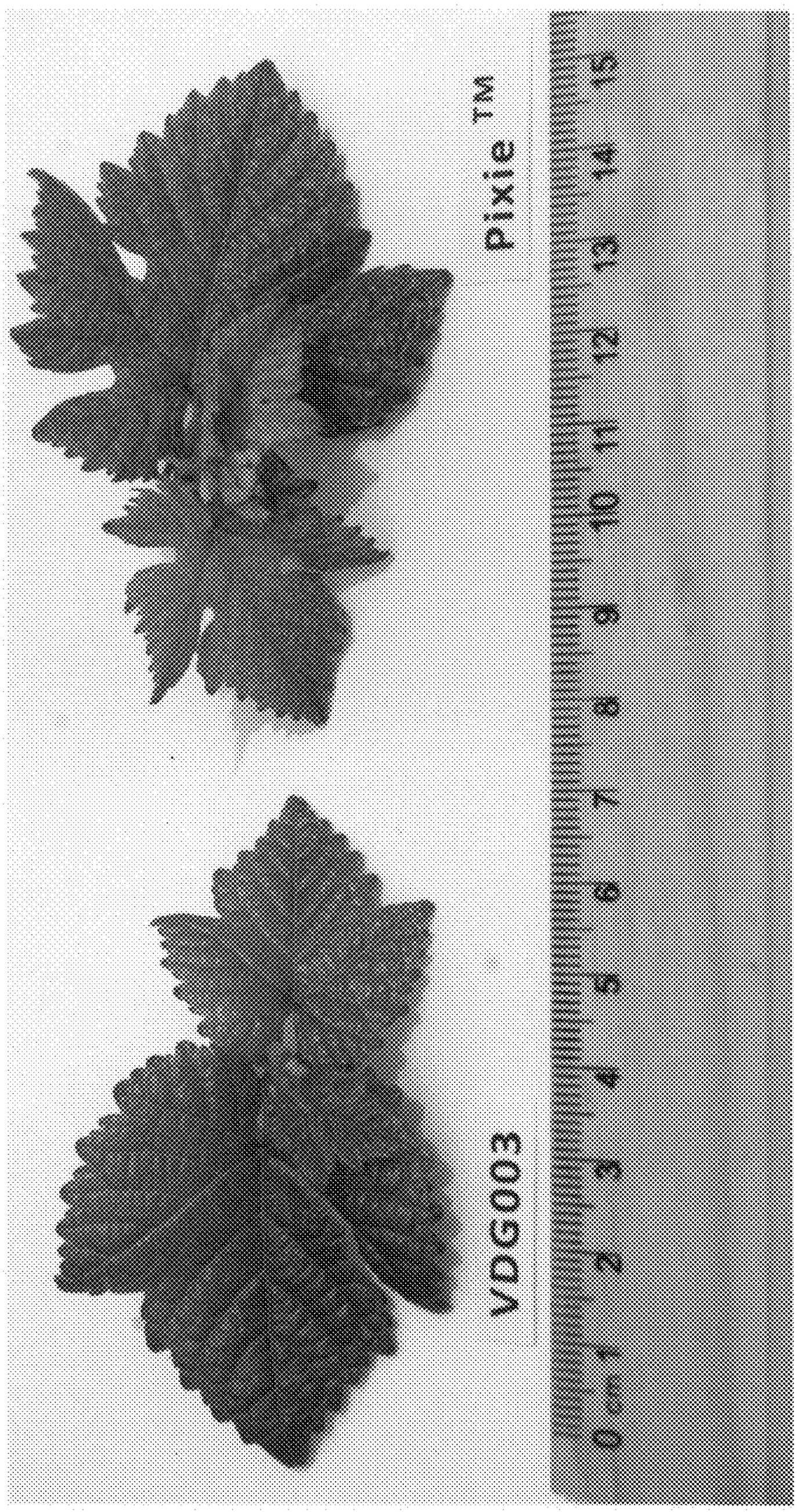

FIG. 4

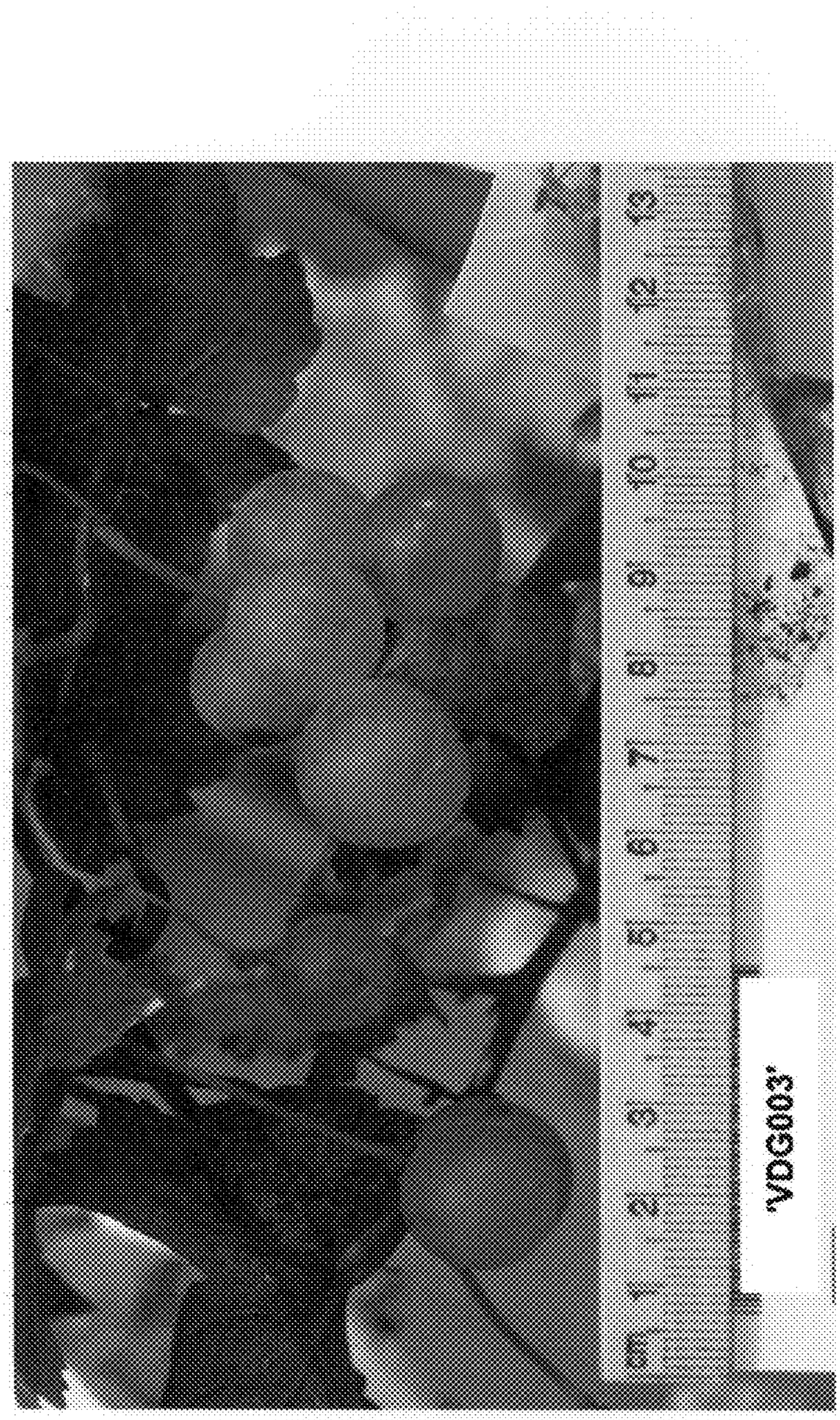

FIG. 5

FIG. 6