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Finn

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(54) **BLACKBERRY PLANT NAMED 'ECLIPSE'**

(50) Latin Name: ***Rubus* subg. *Rubus* Watson.**
Varietal Denomination: **Eclipse**

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See application file for complete search history.

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(57) **ABSTRACT**

A new and distinct blackberry cultivar that originated from seed produced from a cross between the female blackberry plant 'ORUS 1393-1' (unpatented) and the male blackberry plant 'Triple Crown' (unpatented). This new blackberry is unique in that it contains all three commercial blackberry types (trailing, erect, and semi-erect) in its pedigree as either a parent or a grandparent. This new blackberry cultivar can be distinguished by being early ripening for a semi-erect blackberry, by its medium-sized, firm berries with tough skin and very good flavor, by its medium to high yields borne on a vigorous plant with a semi-erect type growth habit and by its completely thornless canes.

5 Drawing Sheets

Latin name of the genus and species of the plant claimed: 'Eclipse' is a blackberry plant that is *Rubus* subg. *Rubus* Watson.

Variety denomination: The new blackberry plant claimed is of the variety denominated 'Eclipse' *Rubus* subg. *Rubus* Watson.

BACKGROUND OF THE INVENTION

The present invention relates to a new and distinct blackberry cultivar designated 'Eclipse' and botanically known as *Rubus* subg. *Rubus* Watson. This new blackberry cultivar was discovered in Corvallis, Oreg. in August 2004 and originated from a cross between the female blackberry plant 'ORUS 1393-1' (unpatented) and the thornless, male parent blackberry plant 'Triple Crown' (unpatented). 'ORUS 1393-1' (unpatented) was a selection from a cross of the thornless erect blackberry 'Navaho' (U.S. Plant Pat. No. 6,679) and a thorny trailing blackberry selection ORUS 1122-1 (unpatented). Therefore 'Eclipse' represents a unique pedigree with all three of the main types of blackberry used in breeding for commercial cultivars represented in its pedigree as it's paternal parent is a hybrid of an erect and trailing blackberry genotype and its maternal parent is a semi-erect blackberry. 'Eclipse's' spinelessness was originally derived from 'Merton Thornless' (U.S. Plant Pat. No. 571). The original seedling of the new cultivar was asexually propagated at a nursery in Benton County, Oreg. The new cultivar was established in vitro from a cane cutting and microcuttings have been taken and rooted from this sort of culture.

The present invention has been found to be stable and reproduce true to type through successive asexual propagations.

SUMMARY OF THE INVENTION

The following are the most outstanding and distinguishing characteristics of this new cultivar when grown under normal horticultural practices in Oregon. 1. High plant vigor as compared to semi-erect blackberry 'Loch Ness' (U.S. Plant Pat. No. 6,782); 2. Semi-erect growth habit with thornless canes; 3. Early date for 50% of ripe fruit compared to 'Chester Thornless' (unpatented) and 'Triple Crown' (unpatented) 4. Firm fruit with tough skin compared to 'Triple Crown' (unpatented); 5. Better flavor than 'Chester Thornless' (unpatented) and 'Loch Ness' (U.S. Plant Pat. No. 6,782); 6. Smaller, firmer, and more symmetrically shaped fruit than those for its sibling 'Galaxy' (plant patent applied for), that also ripens later.

BRIEF DESCRIPTION OF THE PHOTOGRAPHS

This new blackberry plant is illustrated by the accompanying photographs that show the flowers, fruit and entire plants; the colors shown are as true as can be reasonably obtained by conventional photographic procedures.

FIG. **1**. shows typical fruiting cluster with ripe fruit 'Eclipse' on a 2-year old plant.

FIG. **2**. shows an entire flat of harvested 'Eclipse' fruit.

FIG. **3**. shows two clamshells of 'Eclipse' fruit after 14 days of refrigerated storage at ~1° C.

FIG. **4**. shows an entire flowering 4-year old 'Eclipse' plant. As is typical for commercial production, semi-erect blackberry primocanes are topped at ~1 m and the primocanes and laterals that develop after topping are tied to a two wire trellis with the lower wire approximately 1.0 m above the ground and the upper wire approximately 1.5 m above the ground.

FIG. **5**. shows the thornless primocanes on a typical 2-year old crown of 'Eclipse'.

DETAILED DESCRIPTION OF THE NEW CULTIVAR

The following description of 'Eclipse' is based on observations on 2- to 5-year old plants taken from 2012 to 2017 growing seasons in trials in Corvallis and Aurora, Oreg. This description is in accordance with UPOV terminology. Color designations, color descriptions and other phenotypical descriptions may deviate from the stated values and descriptions depending upon variation in environmental, seasonal, climatic and cultural conditions. 'Eclipse' has not been observed under all possible environmental conditions. Color terminology follows The Royal Horticultural Society Colour Chart. London (R.H.S.) (5th edition, 2007).

Table 1 shows important plant characteristics of the new cultivar. Characteristics include plant vigor, growth habit, date 50% of fruit were ripe, weight of primary fruit, firmness of fruit flavor of fruit and winter tolerance in Aurora, Oreg. (45° 16' 49" N/122° 44' 50" W) and Lynden, Wash. (48° 56' 48" N/122° 27' 2" W).

TABLE 1

Characteristic	Eclipse
Plant vigor	High vigor, greater than Loch Ness, similar to Triple Crown and less than Chester THornless
Growth habit	Semi-erect
Date 50% of fruit were ripe	2 Aug., early compared to Triple Crown and Chester Thornless
Weight of primary fruit	6.35 g, larger than Chester Thornless and smaller than Triple Crown
Firmness of fruit	Excellent, firmer than Triple Crown and as firm as Chester Thornless
Skin toughness of fruit	Excellent, better than Triple Crown and similar to Chester Thornless
Flavor of fruit	Very good, better than Chester Thornless or Loch Ness
Winter tolerance in Aurora, Oregon (45° 16' 49" N/ 122° 44' 50" W)	Excellent (comparable to Triple Crown and Chester Thornless)
Winter tolerance in Lynden, Washington (48° 56' 58" N/ 122° 27' 2" W)	Excellent (comparable to Triple Crown and Chester Thornless)

Table 2 shows floricane and mature primocane characteristics of the new cultivar. Characteristics include diameter at base, diameter at midpoint, diameter at terminus, internode length at base, internode length at midpoint, internode length at terminus, presence of spines further than 0.6 m from the soil surface, presence of spines less than 0.6 m from the soil surface, floricane color at base, floricane color at midpoint, floricane color at terminus, floricane lateral length, floricane lateral strength, primocane color at base, primocane color at midpoint, primocane color at terminus, floricane length, and floricane length (range).

TABLE 2

Characteristic	Eclipse
Diameter at base	1.94 cm
Diameter at midpoint	1.30 cm
Diameter at terminus	0.22 cm
Internode length at base	3.83 cm
Internode length at midpoint	5.72 cm
Internode length at terminus	4.55 cm
Presence of spines further than 0.6 m from the soil surface	Absent
Presence of spine less than 0.6 m from the soil surface	Absent
Floricane color at base	144A
Floricane color at midpoint	144A
Floricane color at terminus	144B
FLoricane lateral length	Medium-long
Floricane lateral strength	Medium
Primocane color at base	144A blushed with 166A
Primocane color at midpoint	143C blushed with 200A
Primocane color at terminus	144B blushed with 183A
Floricane length	2.46 m
Floricane length (range)	1.38-3.00 m

Table 3 shows primocane foliage characteristics of the new cultivar. Primocane characteristics include mature compound leaf width, mature compound leaf length, number of leaflets per primocane compound leaf, mature leaflet shape, mature leaflet apex, mature leaflet base, mature terminal leaflet width, mature terminal leaflet length, mature first lateral leaflet width, mature first lateral leaflet length, leaflet margin, leaflet serration teeth length, leaflet serration teeth width at base, spine presence on leaves, pubescence on primocane leaflet: upper surface, pubescence on primocane leaflet: undersurface, primocane leaf color abaxial, primocane leaf color adaxial, petiole length, petiole color: upper surface, petiole color: undersurface, petiolule length: terminal leaflet, petiolule length: first distal leaflet, petiolule color: abaxial, petiolule color: adaxial, stipule length, stipule width, and stipule attitude.

TABLE 3

Characteristic	Eclipse
Mature compound leaf width	25.90 cm
Mature compound leaf length	22.72 cm
Number of leaflets per primocane compound leaf	5
Mature leaflet shape	Oval; some orbicular
Mature leaflet apex	Abruptly acuminate
Mature leafelt base	Acute
Mature terminal leaflet width	9.50 cm
Mature terminal leaflet length	12.47 cm
Mature first lateral leaflet width	7.77 cm
Mature first lateral leaflet length	11.25 cm
Leaflet margin	Doubly serrate
Leaflet serration teeth length	0.26 cm
Leaflet serration teeth width at base	0.70 cm
Spine presence on leaves	No
Pubescence on primocane leaflet: upper surface	None
Pubescence on primocane leaflet: undersurface	Yes, light
Primocane leaf color abaxial	N137B
Primocane leaf color adaxial	137B
Petiole length	6.77 cm
Petiole color: upper surface	145B strongly blushed with 187A
Petiole color: undersurface	145B blushed with 187A
Petiolule length: terminal leaflet	3.55 cm
Petiolule length: first distal leaflet	2.20 cm
Petiolule color: abaxial	145B blushed with 187A
Petiolule color: adaxial	145B blushed with 187A

TABLE 3-continued

Characteristic	Eclipse
Stipule lenght	1.84 cm
Stipule width	0.08 cm
Stipule attitude	Erect

Table 4 shows floricane foliage characteristics of the new cultivar. Floricane characteristics include mature compound leaf width, mature compound leaf length, number of leaflets per floricane compound leaf, mature leaflet shape, mature leaflet apex, mature leaflet base, mature terminal leaflet width, mature terminal leaflet length, mature first lateral leaflet width, mature first lateral leaflet length, leaflet margin, leaflet serration teeth length, leaflet serration teeth width at base, pubescence on floricane leaflet: upper surface, pubescence on floricane leaflet: undersurface, floricane leaf color abaxial, floricane leaf color adaxial, petiole length, petiolule length: terminal leaflet, petiolule length: first distal leaflet, petiolule color: abaxial, petiolule color: adaxial, stipule length, and stipule width.

TABLE 4

Characteristic	Eclipse
Mature compound leaf width	17.37 cm
Mature compound leaf length	11.32 cm
Number of leaflets per floricane compound leaf	2-5, typically 3
Mature leaflet shape	Ovate
Mature leaflet apex	Broadly acute
Mature leaflet base	Acute
Mature terminal leaflet width	7.33 cm
Mature terminal leaflet length	9.70 cm
Mature first lateral leaflet width	6.87 cm
Mature first lateral leaflet length	9.00 cm
Leaflet margin	Doubly serrate
Leaflet serration teeth length	0.35 cm
Leaflet serration teeth width at base	0.43 cm
Pubescence on floricane leaflet: upper surface	Light
Pubescence on floricane: leaflet undersurface	Heavy
Floricane leaf color abaxial	N137A
FLoricane leaf color adaxial	N138B
Petiole length	4.42 cm
Petiole color adaxial	144A
Petiole color abaxial	144D
Petiolule length terminal leaflet	1.7 cm
Petiolule length first distal leaflet	1.89 cm
Petiolule color abaxial	144A
Petiolule color adaxial	144C
Stipule length	1.15 cm
Stipule width	0.18 cm

Table 5 shows flower and flowering characteristics of the new cultivar. Flower and flowering characteristics include date 1st bloom, date full bloom, date last bloom, petal color, the number flowers per cluster, the number of petals per flower, flower diameter, petal length, petal width, and the number of sepals per flower.

TABLE 5

Characteristic	Eclipse
Date 1st bloom	10 May
Date full bloom	27 May
Date last bloom	3 Jun
Petal color	NN155B
Number flowers per cluster	7.87
Number of petals per flower	5.22
Flower diamteter	3.28 cm
Petal length	1.47 cm

TABLE 5-continued

Characteristic	Eclipse
Petal width	1.12 cm
Number of sepals per flower	5
Peduncle length	17.87 cm
Rachis length	14.43 cm
Peduncle color	N144A
Cyme type	Simple raceme

Table 6 shows fruit and fruiting characteristics of the new cultivar. Fruit and fruiting characteristics include date 5% of fruit were ripe, date 50% of fruit were ripe, date 95% of fruit were ripe, weight of primary fruit, weight of secondary fruit, diameter of primary fruit at equator, diameter of 2° fruit at equator, diameter of 1° fruit at poles: tip, diameter of 1° fruit at poles: base, diameter of 2° fruit at poles: tip, diameter of 2° fruit at poles: base, berry length 1° fruit, berry length 2° fruit, ratio of primary fruit length to width, shape description, uniformity of berry shape, color when full ripe, number of drupelets per fruit, individual seed weight, glossiness, firmness, flavor, texture of fruit when chewed, drupelet skin resistance to abrasion, ease of separation of fruit from pedicel, machine harvestability, resistance to heat damage of fruit, berries per inflorescence—mean, berries per inflorescence range, soluble solids (%; in Brix), pH, titratable acidity (% as citric acid), yield (actual kg·plt^{-1}), disease response, and red berry mite response.

TABLE 6

Characteristic	Eclipse
Date 5% of fruit were ripe	18 Jul.
Date 50% of fruit were ripe	2 Aug.
Date 95% of fruit were ripew	24 Aug.
Weight of primary fruit	6.35 g
Weight of secondary fruit	6.13 g
Weight of tertiary fruit	5.55 g
Diameter of primary fruit at equator	1.73 cm
Diameter of 2° fruit at equator	1.99 cm
Diameter of 3° fruit at equator	1.89 cm
Diameter of 1° fruit at poles: tip	0.94 cm
Diameter of 1° fruit at poles: base	1.63 cm
Diameter of 2° fruit at poles: tip	0.92 cm
Diameter of 2° fruit at poles: base	1.78 cm
Diameter of 3° fruit at poles: tip	1.17 cm
Diameter of 3° fruit at poles: base	1.56 cm
Berry length primary fruit	2.58 cm
Berry length 2° fruit	2.72 cm
Berry length 3° fruit	2.52 cm
Ratio of primary fruit length to width	1.48
Shape description	Conical to barrel, slightly irregular
Uniformity of berry shape	Good
Color when full ripe	203C
Number of druplets per fruit	88.67
Total seed weight per fruit	222.92 mg
Individual seed weight	2.52 mg
Glossiness	Glossy
Firmness	Very firm
Flavor	Very good
Texture of fruit when chewed	Fair-good
Druplet skin resistance to abrasion	Excellent
Ease of separation of fruit from pedicel	Fair
Machine harvestability	Fair
Resistance to heat damage of fruit	Sweet
Berries per inflorescence-mean	6.33
Berries per inflorescence range	5-9
Soluble solids (%; in Brix)	13.85
pH	3.37
Titratable acidity (% as citric acid)	9.90

TABLE 6-continued

Characteristic	Eclipse
Yield (actual kg · plt^{-1})	6.93
Disease response	Under a typical, minimal, disease management program does not exhibit any particular disease problems
Red berry mite (*Acalitus essigi*) response	Susceptible but fewer symptoms than on Triple Crown

COMPARISON WITH PARENTAL AND COMMERCIAL CULTIVARS

'Eclipse' differs from the female parent blackberry plant 'ORUS 1393-1' (unpatented) in that 'Eclipse' is thornless and the fruit have a sweet, pleasant flavor and are more uniformly shaped, while 'ORUS 1393-1' has thorny canes and the fruit are slightly bitter and the drupelets are unevenly set.

'Eclipse' differs from the male parent blackberry plant 'Triple Crown' (unpatented) in that it is earlier ripening (50% ripe fruit on 2 August) with medium sized (6.35 g) fruit that are firm with a tough skin, while 'Triple Crown' (unpatented) is mid-season ripening (16 August) with large (7.50 g) fruit that are soft with tender skin.

'Eclipse' is earlier ripening than other commercial semi-erect blackberries such as 'Triple Crown' (unpatented) or 'Chester Thornless' (unpatented). 'Eclipse' ripens in a similar season to the semi-erect blackberry 'Loch Ness' (U.S. Plant Pat. No. 6,782) but is more vigorous growing and has firmer fruit with a sweeter flavor. 'Eclipse' is not typically as high yielding as 'Chester Thornless' (unpatented) or 'Triple Crown' (unpatented). The fruit of 'Eclipse' are firm and have a tough skin like those of 'Chester Thornless' (unpatented) and are firmer and much tougher skinned than 'Triple Crown' (unpatented) fruit. 'Eclipse' fruit are sweeter than 'Chester Thornless' (unpatented) fruit due to higher percent soluble solids and lower titratable acidity and pH.

The invention claimed is:

1. A new and distinct cultivar of thornless blackberry plant, substantially as illustrated and described, characterized by its medium sized fruit that are sweet, firm and have a tough skin and that ripen earlier than most semi-erect blackberry cultivars.

* * * * *

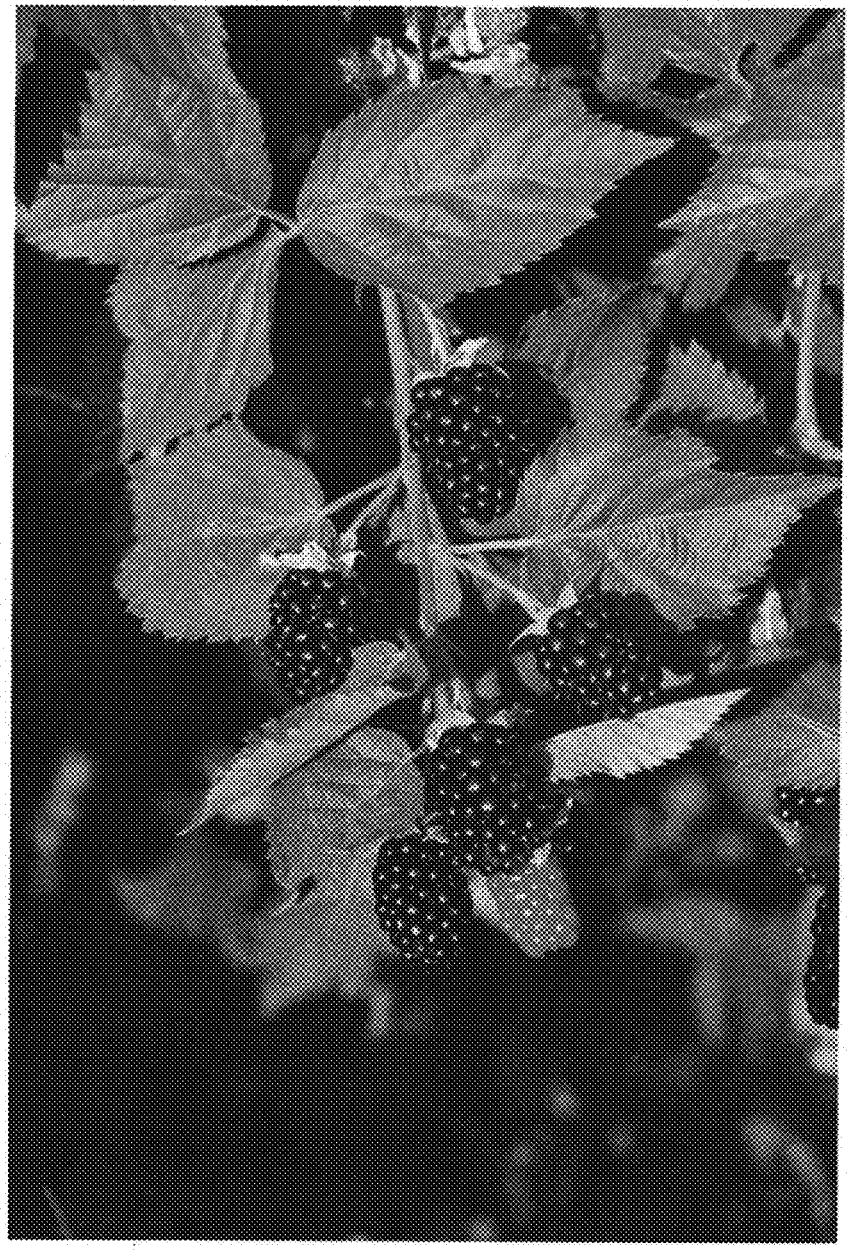

FIG. 1

FIG. 2

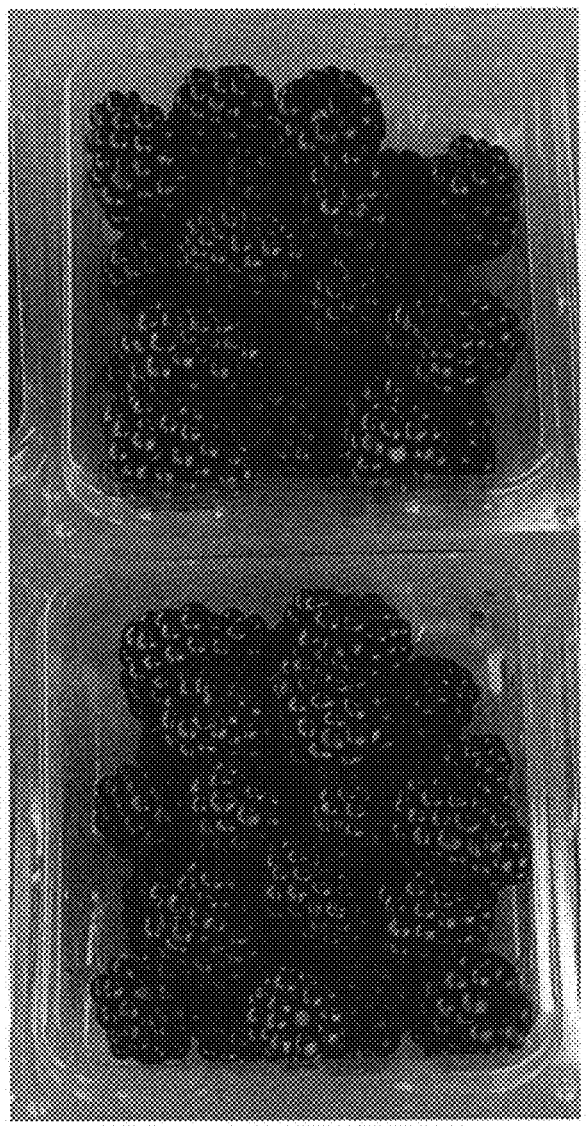

FIG. 3

FIG. 4

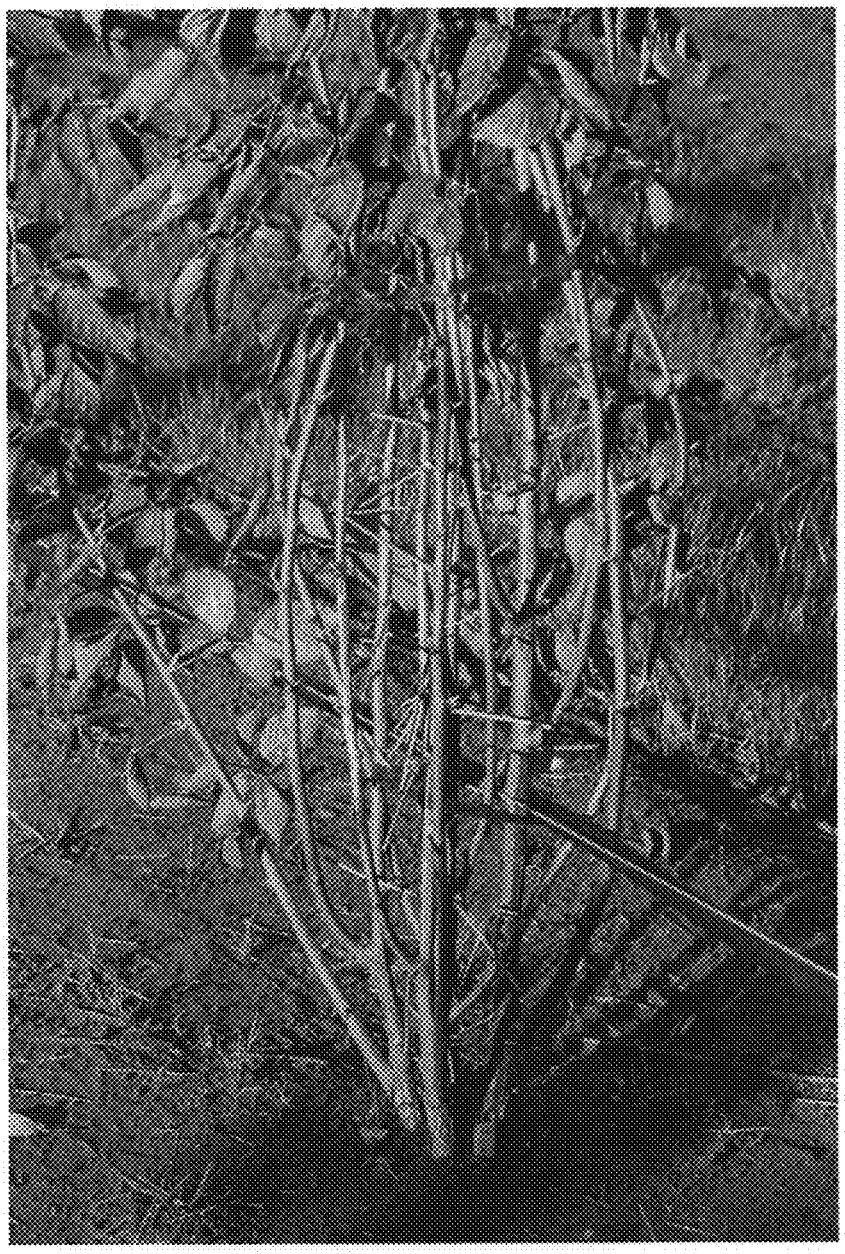

FIG. 5