



US00PP20771P3

(12) **United States Plant Patent**  
**Hall et al.**

(10) **Patent No.:** **US PP20,771 P3**

(45) **Date of Patent:** **Feb. 23, 2010**

(54) **RASPBERRY PLANT NAMED 'KORPIKO'**

(50) Latin Name: ***Rubus idaeus* L.**  
Varietal Denomination: **Korpiko**

(75) Inventors: **Harvey K. Hall**, Motueka (NZ); **Joseph Stephens**, Auckland (NZ)

(73) Assignee: **The New Zealand Institute for Plant and Food Research Limited**, Auckland (NZ)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **12/214,354**

(22) Filed: **Jun. 18, 2008**

(65) **Prior Publication Data**

US 2008/0320621 P1 Dec. 25, 2008

**Related U.S. Application Data**

(60) Provisional application No. 60/936,262, filed on Jun. 19, 2007.

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

(52) **U.S. Cl.** ..... **Plt./204**

(58) **Field of Classification Search** ..... **Plt./204**  
See application file for complete search history.

*Primary Examiner*—Susan B McCormick Ewoldt

(74) *Attorney, Agent, or Firm*—Greenlee Winner and Sullivan PC

(57) **ABSTRACT**

A new and distinct florican fructing red raspberry, *Rubus idaeus* L., variety is described. The variety results from selection among a population of seedlings derived from controlled pollination crossing of the raspberry varieties known as 'Chilcotin' (not patented) and 'Waimea' (not patented). The fruit of this new variety has an attractive appearance characterized by uniformly large berry size, good fruit firmness, and medium-red fruit color. The new variety is distinguished from others by its high yields of firm, attractive, uniformly sized, large, red berries that ripen in the mid season. The plant exhibits a semi spine-free upright growth habit, of strong vigor. In addition, the plant has displayed resistance to Raspberry Bushy Dwarf Virus (RBDV) under New Zealand conditions. Fruit of the new variety appears suitable for the fresh fruit market. The variety has been named 'Korpiko'.

**9 Drawing Sheets**

**1**

Genus and species of plant claimed: *Rubus idaeus* L.

Variety denomination: Korpiko.

**BACKGROUND TO THE INVENTION**

The new variety of red raspberry, *Rubus idaeus* L., was created in the course of a planned breeding program carried out at Nelson, Motueka, New Zealand. The parents used to make the cross in 1990, were the varieties 'Chilcotin' (seed parent) (unpatented) and 'Waimea' (pollen parent) (unpatented).

Seed from this cross was grown and the original plant of the new variety was selected during the 1993-94 summer (Southern Hemisphere) and was found to exhibit:

- (a) a semi spine-free upright growth habit of strong vigor,
- (b) the ability to form attractive large red fruit of good flavor in high yields on medium length fruiting laterals that ripen mid season, and
- (c) resistance to Raspberry Bushy Dwarf Virus (RBDV).

The new variety was first asexually propagated in 1998, at Motueka, Nelson, New Zealand, being reproduced by vegetative cuttings arising from root cuttings. Cuttings developed this way in spring, root within a 3-4 week propagation period, and thus plants suitable for field planting are then ready in

**2**

autumn of the same year. The resulting plants propagated true to type, demonstrating that the characteristics of the new cultivar are stable and are transmitted without change through succeeding generations. Since 2000, 'Korpiko' has been asexually propagated in vitro via tissue culture methods. The cultivar has propagated true to type via these means.

**SUMMARY OF THE INVENTION**

The new variety was selected from a population of seedlings derived from crossing the raspberry varieties known as 'Chilcotin' (not patented) and 'Waimea' (not patented). The new variety was assigned the breeder code, 90311BF-7 (subsequently coded HR6 at the advanced selection stage). The new variety has since been named 'Korpiko'.

The new variety was tested and evaluated during the years 1996 to 2005 at Nelson Region, New Zealand (41.10°S, 172.97°E). The new variety has also been observed in test plots in Washington State, United States of America (USA).

When compared to the parent 'Chilcotin', the new variety was found to have larger, more conical shaped fruit of similar color, the larger fruit resulting in higher yields. 'Korpiko' is further distinguished from 'Chilcotin' by having fewer spines on canes.

When compared to the parent 'Waimea', the new variety exhibits fruit that are brighter red in color, that are larger and more conical in shape. 'Korpiko' also produces significantly higher cane numbers than 'Waimea' resulting in higher potential productivity and has more spines on canes.

TABLE 1

| Comparison of fruiting and shelf life performance.               |                              |                        |                            |                              |                        |                            |
|--|------------------------------|------------------------|----------------------------|------------------------------|------------------------|----------------------------|
| Variety  | 2003/04 season               |                        |                            | 2005/06 season               |                        |                            |
|  | Yield <sup>1</sup><br>(T/ha) | Berry<br>weight<br>(g) | Shelf<br>life <sup>2</sup> | Yield <sup>1</sup><br>(T/ha) | Berry<br>weight<br>(g) | Shelf<br>life <sup>2</sup> |
| 'Tadmor' (U.S. Plant Pat. No. 14,036)                            | 25.9                         | 4.5                    | 36                         | 13.7                         | 4.7                    | 50                         |
| 'Korpiko'  | 14.8                         | 4                      | 45                         | 17.2                         | 5.3                    | 27                         |
| 'Tulameen' (not patented)  | 17.1                         | 4.1                    | 63                         | 12.9                         | 4.2                    | 76                         |
| 'Motueka' (U.S. Plant Pat. No. 14,035)                           | 21.3                         | 2.7                    |                            | 15.3                         | 3.8                    |                            |
| 'Moutere' (U.S. Plant Pat. No. 17,744)                           | 17.4                         | 3                      | 63                         | 14.2                         | 4.5                    | 48                         |
| 'Korere' (co-pending U.S. Plant Pat. application No. 12/214,361) | 19.5                         | 2.8                    | 30                         | 13.2                         | 3.8                    | 48                         |

<sup>1</sup>Hand-picked<sup>2</sup>Mean (10 berries × 3 reps × 3 harvests) cumulative percentage of berries with rot caused by *Botrytis* after 72 hours on the shelf at ambient temperatures (15-20° C.).

Berries of the new variety are suitable for consumption as mid season, high-grade fresh fruit.

## BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying photographs show typical specimens of the plant, foliage and fruit of the new variety as depicted in colors as nearly true as is reasonably possible to make the same in a color illustration of this character. The photographs were taken on mature plants in Nelson Region, New Zealand and Washington State, USA.

FIG. 1 shows fruit of the variety 'Korpiko'.

FIG. 2 shows a sample of individual fruit of the variety 'Korpiko' alongside a scale indicating fruit size.

FIG. 3 shows close-up views of typical individual fruit of the variety 'Korpiko' on a 1 cm×1 cm grid.

FIG. 4 shows a close-up view of a fruiting lateral, including fruit, of the variety 'Korpiko' on the plant.

FIG. 5 shows the leaf and shoot tip of a fruiting lateral of the variety 'Korpiko'.

FIG. 6 shows a primocane tip of a cane of the variety 'Korpiko'; view is of the upper and lower surface of the leaves.

FIG. 7 shows a florican leaf of the variety 'Korpiko'; view is of the upper and lower surfaces.

FIG. 8 shows a plant of the variety 'Korpiko' in the field; view is of the post-flowering, early fruit set stage.

FIG. 9 shows a fruiting plant of the variety, 'Korpiko' in the field; the large fruit size, high productivity, and the productive, medium length fruiting laterals are displayed.

## DETAILED DESCRIPTION

Horticultural terminology is used in accordance with UPOV guidelines for rasoberry. All dimensions in millimeters, weights in grams (unless otherwise stated). Where a colour reference is given these refer to The R.H.S. Colour

Chart, The Royal Horticultural Society, London, 4th Edition, 2001. The specimens described were grown at Nelson, New Zealand, and in Washington State, USA.

Environmental data for the New Zealand growing area demonstrates conditions in spring and early summer (equating to the harvest period for the cultivar) as follows:

Spring (September/October); mean daily temperature in the range 10–12° C. (mean daily minimum 5.8° C., mean daily maximum 16.5° C.).

Early summer (December/January); mean daily temperature 16.8° C. (mean daily minimum 11.1° C., mean daily maximum 22.4° C.).

A cool temperate area, frost conditions are typically experienced in winter, with the lowest winter air temperature unlikely to be colder than –6° C. Average annual rainfall is approximately 1125 mm.

Plant and foliage: plants exhibit a strong and medium upright growth habit (FIGS. 8 and 9). Mature plant height is commonly in the range 2000 mm to 2500 mm, although this may vary with the growing conditions. Strong vigor is exhibited and internode length is typically long in the range 110–130 mm. Plants have many young shoots; canes have many spines near the base and few near the top of mature canes. Spines (prickles/thorns) are sparse, particularly on the upper cane section and are small on mature canes (typically approximately 1 mm long), but may be denser and longer on juvenile canes. Plants have been observed to be less spiny compared with some other commercial varieties, for instance, 'Marcy' (not patented). Spine color is dark (near purple N79A). Canes are pubescent indicating the presence of gene H. Canes typically show light brown-tan coloration (near Greyed-orange 174A and Grey-brown 199B) in winter. During the growing season some purple coloration (near Red-purple 59A) is evident on the sun-exposed side of the cane. Young shoots are erect and are near Yellow-green 144A in color. Fruiting laterals are medium long typically 600–800 mm in length. The leaves are compound, moderately crinkled, flat and moderately dull, with strong silver coloration on the leaf underside. (FIGS. 6 and 7). The number of primocane leaflets per internode is both three and five. The base of the terminal leaflet is rounded in shape and typically averages 80 mm in diameter and 100 mm in length. The coloration of the upper surface of the leaf is green (near Yellow-green 146A), the under side being markedly lighter in coloration (near Greyed-green 191A). While the leaves do not have distinguished marginal or vein coloration, the venation has noticeable rises and falls, and the leaf margin is typically serrate. The leaf petiole typically averages approximately 105 mm in length and 2.5 mm in diameter. It is near Yellow-green 144B in color. The fruit is borne on the previous year's growth. The fruiting laterals are medium long in length, commonly measuring 500–700 mm, and are weakly ascending and horizontal when fruit has ripened. Fruit presentation at harvest time is excellent and well suited to hand-picking.

Inflorescence: White flowers are borne on short slender pedicels with sparse spines (thorns/prickles). At Nelson Region, New Zealand the date bud burst commences is approximately 8 September, with fifty percent of buds burst by mid-late September (approximately 22 September). The time of bloom is mid season for a summer-fruiting raspberry, with peak flowering around mid November. Flowers are numerous and borne on a paniculate inflorescence. Typically there are five petals, elongated

ovate in shape with a rounded apex and flat base. The petals average approximately 7.1 mm in length and 3.4 mm in width. They are typically smooth in texture, have a smooth margin and are near White 155C in color. The pedicel length averages approximately 17.0 mm long. However, the more basal the pedicel the longer it commonly becomes with pedicel lengths up to about 50 mm being observed. The pedicel averages approximately 1.1 mm in diameter and is near Yellow-green 144A in color and has weak anthocyanin coloration on the sun-exposed side. A typical king flower diameter is approximately 29 mm (from sepal tip to sepal tip i.e. the widest part of the flower). The flowers are predominantly borne singly, although sometimes in clusters of two or more. Terminal branch flower clusters frequently consist of two flowers and basal flower clusters may number three to five. The flowers have no discernible fragrance. Five sepals are present. These are green in coloration (near Yellow-green 144A on the bottom and near Green 138C on top) and measure approximately 15 mm in length from base to tip. The reproductive organs are typical for flowers of *Rubus idaeus* L.; the stigmas average approximately 95 in number and are near Yellow-green 145C in color; there are approximately 90–95 stamens the filaments which are near White 155D in color and average 4.4 mm in length. Anthers are brown and (depending on maturity) near Brown 200D in color.

Harvest: Fruit commences ripening in mid December in New Zealand. The typical start date for picking the new variety is 13 December. Fifty percent of the harvest is typically completed by 28 December, and the main harvest period is complete by mid January (approximately 18 January). ‘Korpiko’ is not suitable for harvest by machine due to the moderately strong force required to dislodge the berry from the receptacle. ‘Korpiko’ is recommended for mid season production for fresh market fruit. The variety may also be suited to long cane production systems due to its high quality fruit and suitability to fresh markets.

Fruit: Fruit is produced on previous year’s cane in summer. Berry size is large. The average berry weight is approximately 4.5 g; individual fruit ranging between 4–6 g in weight (Table 1). Fruit shape is conical; on the basis of fruit length to width ratio, fruit is much longer than broad (FIG. 3). On average berries are 25 mm long and 20 mm wide at the widest point. Fruit color is medium red; external color near Red-46A, internal color near Red 46A. Fruit color of ‘Korpiko’ fruit has been observed to differ to that of another commercial red raspberry variety, ‘Skeena’ (not patented), which has medium dark red fruit. The fruit skin

of ‘Korpiko’ fruit shows medium to high glossiness as a result of hairs present. Attractive large conical shaped fruit and the presence of fine hairs on the fruit skin are distinctive features of the new variety. Fruit drupelet size has been observed to be medium compared with drupelet size of fruit of another commercial red raspberry variety, ‘Glen Ample’ (not patented) which are large. Drupelets number typically 95 and are quite large, typically 4.5 mm in diameter. Fruit size is uniformly large through the harvest maturity period. The berries are medium firm and of good raspberry flavor. The seeds average 3.0 mm long and 1.6 mm wide, and are near Greyed-orange 164D in color when dry. Seed numbers per fruit average 95 and weigh on average 0.14 g per fruit (or average 1.5 mg individually). Fruit quality is largely due to the fruit having a firm and fleshy-texture with good flavor. ‘Korpiko’ fruit has been observed to have a good shelf life in Nelson Region, New Zealand (Table 1). Fruit shelf life appears improved over the commercial varieties ‘Marcy’ (not patented), ‘Skeena’ (not patented), and ‘Tulameen’ (not patented). Yield is high, typically in the range 14–18 T/ha equivalent (Table 1).

Pest and disease resistance: The plant does not seem to be susceptible to yellow rust (*Phragmidium rubi-idaei*) and appears resistant to Raspberry Bushy Dwarf Virus (RBDV). Since the selection of this clone in 1993–94 numerous tests for RBDV have been carried out on ‘Korpiko’ in New Zealand using ELISA, but on no occasion has the virus been detected in spite of high infection pressure. From this we suggest that ‘Korpiko’ is likely to be resistant to the common strain of RBDV found in New Zealand. Resistance to aphids is unknown.

Geographical adaptation: Observations indicate that the variety is well-suited to production in regions that offer a medium amount of winter chill, for example, ‘Korpiko’ performs well in the cool temperate region of Nelson, New Zealand under standard management practices for commercial raspberry production. Initial indications are that ‘Korpiko’ also performs well in USDA Plant Hardiness zones 8–10 (published as the 2003 US National Arboretum “Web Version” of the USDA Plant Hardiness Zone Map USDA Miscellaneous Publication No. 1475, Issued January 1990).

We claim:

1. A new and distinct red raspberry plant as herein illustrated and described.

\* \* \* \* \*

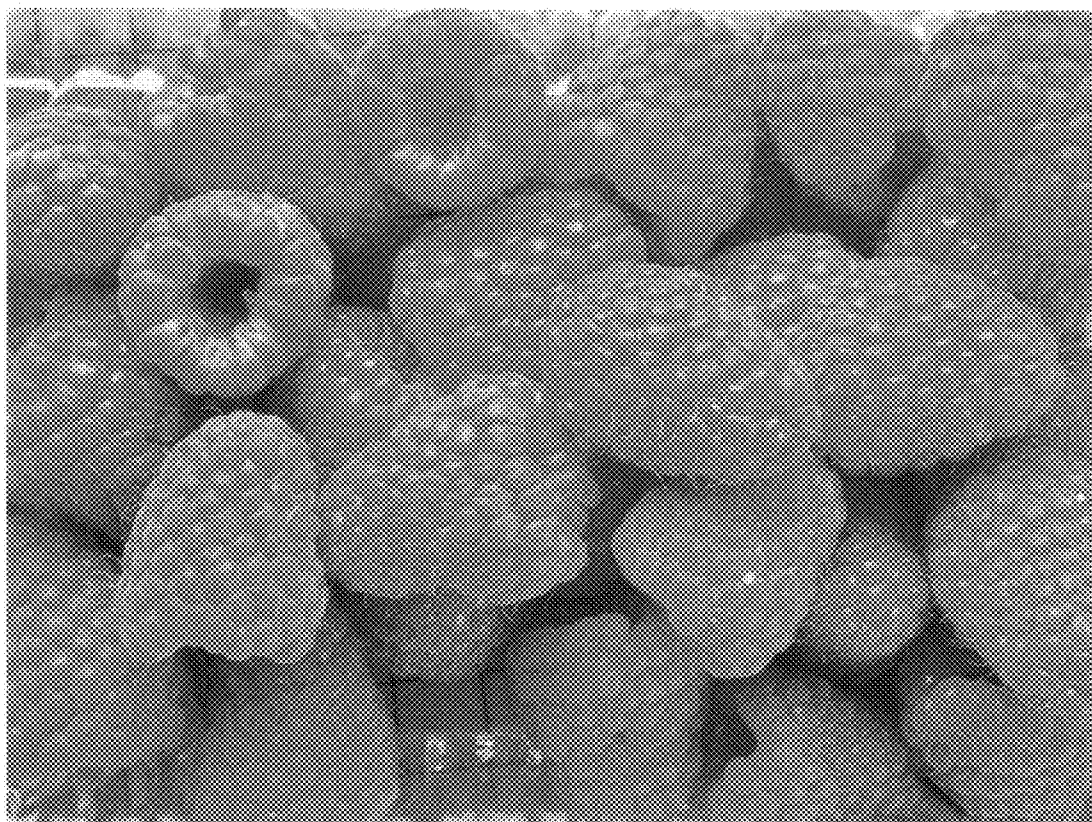


FIGURE 1

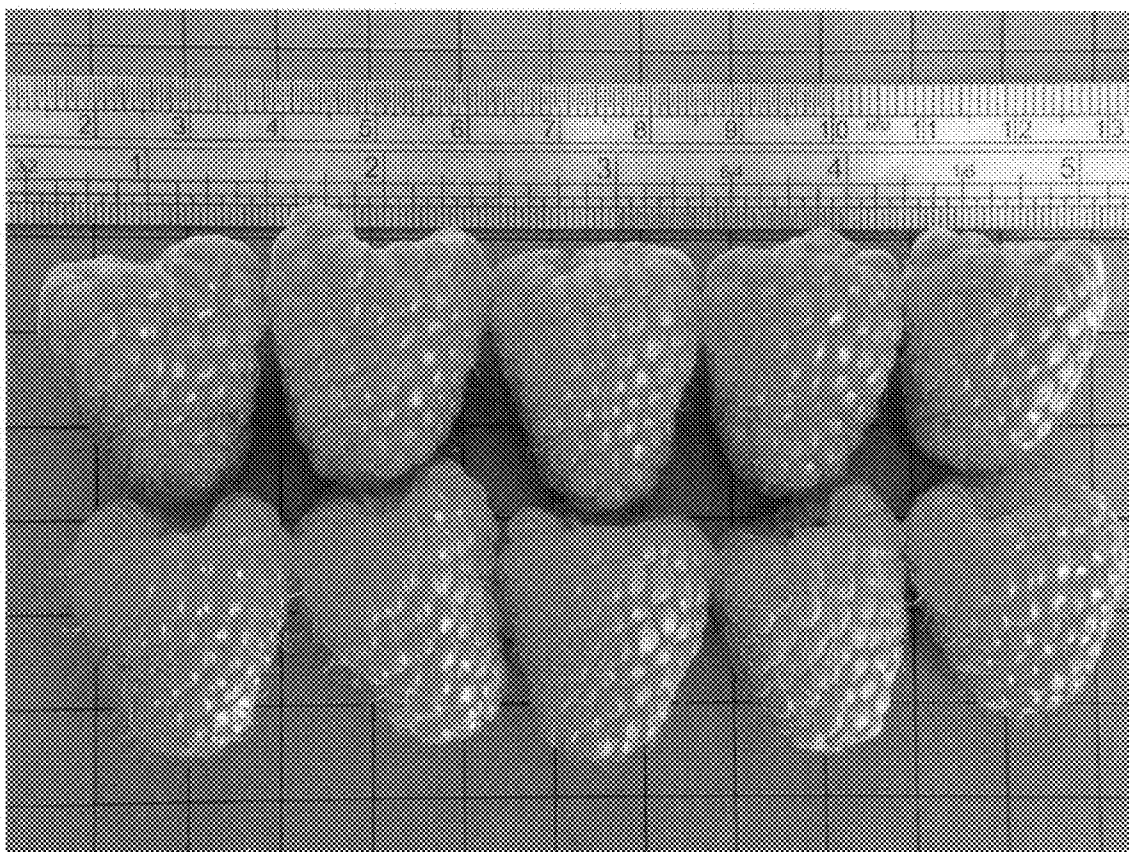


FIGURE 2

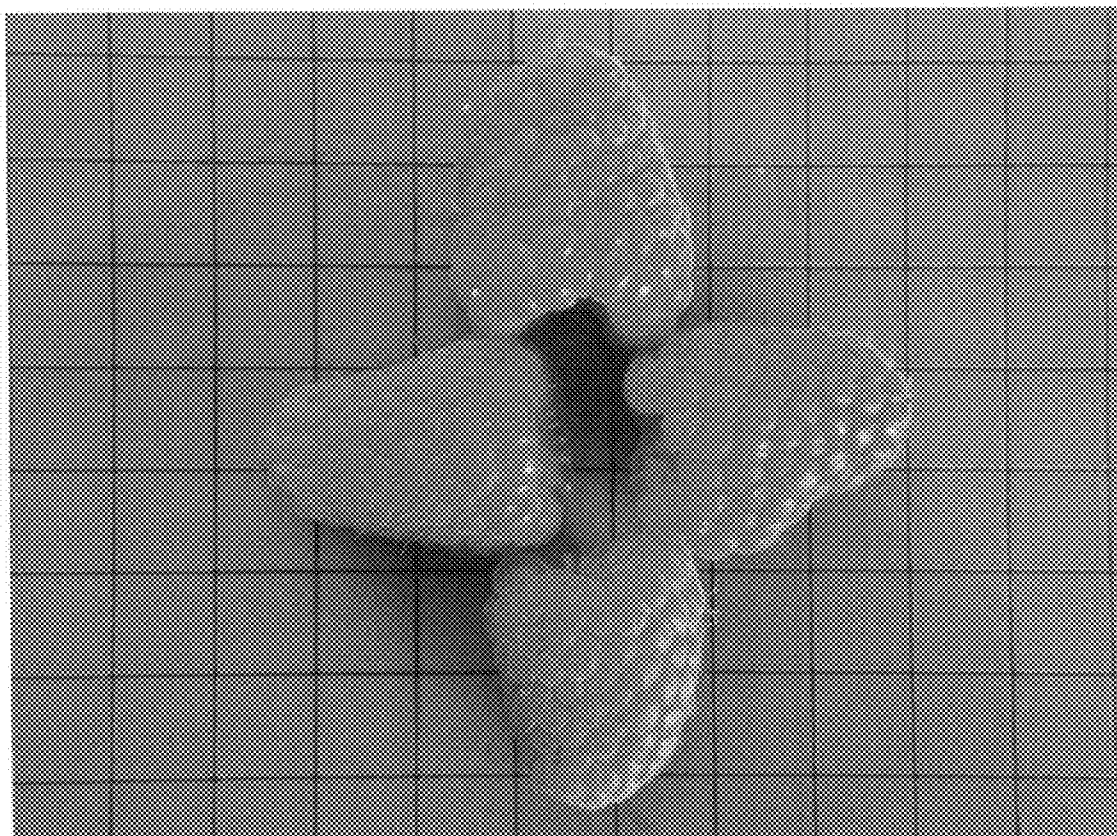


FIGURE 3



FIGURE 4



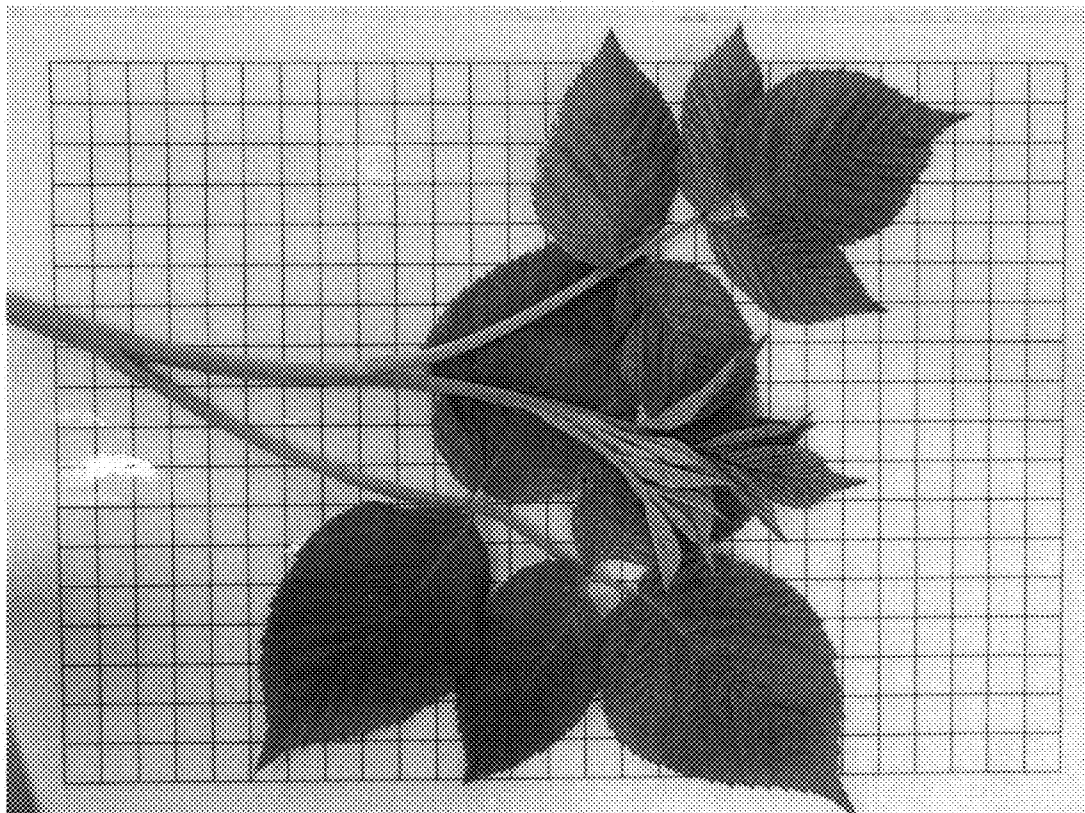


FIGURE 5



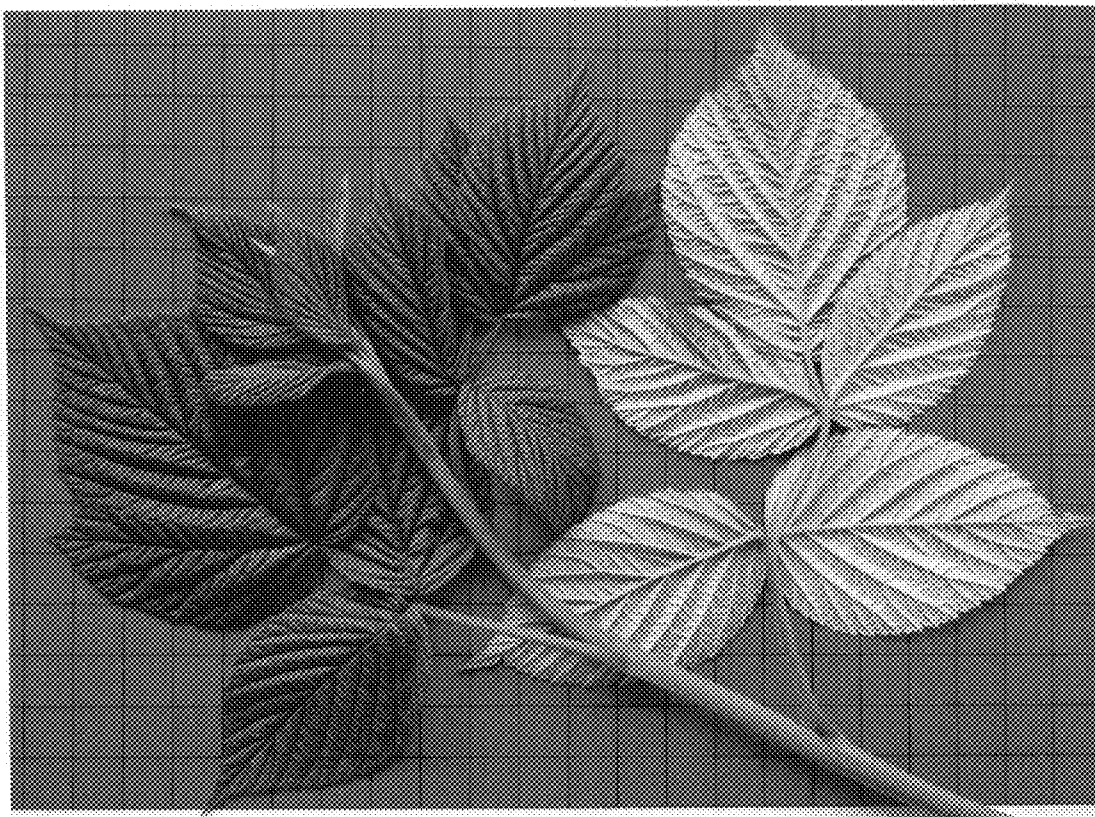


FIGURE 6

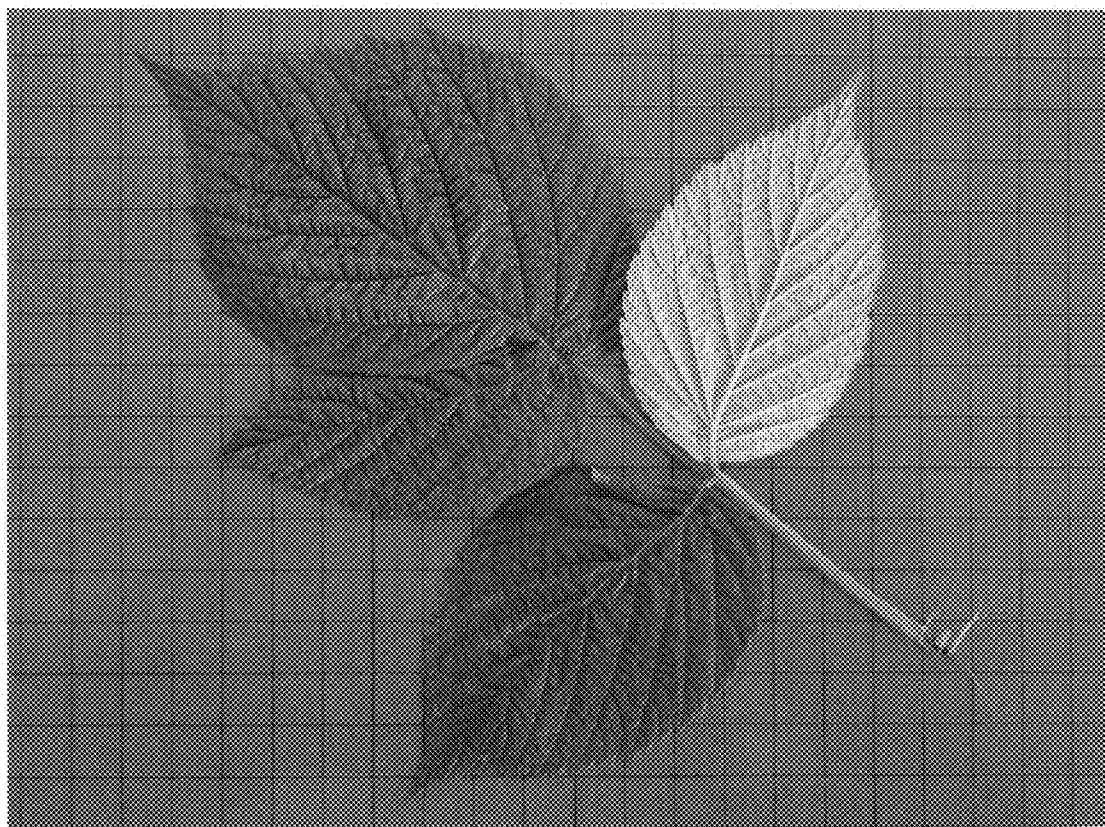


FIGURE 7



FIGURE 8



FIGURE 9