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Izsak et al.

[54] STRAWBERRY PLANT NAMED 'TAMAR'

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[58] Field of Search Plt./48, 49, 208, Plt./209

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[57] **ABSTRACT**

A new and distinct variety of strawberry (*Fragaria L.*) called 'Tamar' is a cross between 'Oso Grande' and 'Dorit', and flowers "very early to early" on a scale of "very early" to "very late".

2 Drawing Sheets**1****FIELD OF THE INVENTION**

The present invention relates to a new and distinct variety of strawberry (*Fragaria L.*) called 'Tamar'.

BACKGROUND

This new variety was developed from an organized scientifically designated breeding program, carried out at the Agricultural Research Organization, the Volcani Center, Bet Dagan, Israel. This new variety originated as a single seedling selected from a seedling population obtained from crosses between the strawberry varieties 'Oso Grande' (U.S. Plant Pat. No. 6,578) and 'Dorit' and was asexually vegetatively propagated at Bet Dagan, Israel, through runners and the propagation ran true.

SUMMARY OF THE INVENTION

The new variety 'Tamar' is able to grow in September and produce fruit starting in November and lasting until summer. The production of fruit beginning in November (Northern Hemisphere, latitude 30–33 degrees) is two months earlier than short day varieties of *Fragaria L.* known to applicants. The fruit of the 'Tamar' variety is characterized by good taste, good shape and good size.

BRIEF DESCRIPTION OF THE FIGURES

FIG. 1: Photograph of the 'Tamar' variety, illustrating the fruits.

FIG. 2: Photograph of the 'Tamar' variety, illustrating a cross-section of the fruits.

FIG. 3: Photograph of the 'Tamar' variety, illustrating the entire plant with foliage, flowers and fruit.

DETAILED BOTANICAL DESCRIPTION OF THE INVENTION

The 'Tamar' variety was grown in winter, under polyethylene tunnels in Israel. 'Tamar' is an infra short day variety flowering earlier than short days type strawberry varieties. Infra-Short-Day (I.S.D) varieties are defined as varieties which initiate flower bud primordia under long light regimes of 13–14 hours at the time that temperatures are about 22° C., compared to strawberry types classified as short-day or day-neutral, that do not initiate flower bud primordia under above-mentioned conditions, thus resulting in early flowering and fruit production. The plants are grown in polyethylene tunnels to prevent malformation of the fruit that can be caused by wind and rain. Flowering and fruit production are not affected by the use of polyethylene tunnels.

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This production procedure is utilized in normal agricultural practices by the skilled artisan and does not involve temperature or light control. Plants were stored at 0° C. January through April. They were then planted in the nursery without further treatment. Runners with plantlets were produced during summer. These young plantlets were collected from the nursery in September and transferred to raised beds. Average temperatures at that time of the year are 30° C. during the day and 22° C. at night. Water and fertilizers were applied through drip irrigation.

An example of an optimum planting date is between September 5 and 15, with the approximate date of flowering on October 5–15, and the approximate date of first fruiting on November 5–15. Flowering is not induced by chilling, but by natural exposure to short day length (long nights) characteristic of late fall and early winter.

Strawberry plants in general are self-fertile, as is 'Tamar'; no pollinator is needed as pollination is brought about by insects and wind.

Color readings described herein were taken under natural light conditions and color identifications were made by reference to The Royal Horticultural Society Colour Chart (R.H.S.C.C.) except where common terms of color definition are employed.

The pertinent characteristics of the present invention are presented in Table 1 and Table 2. Additionally, the variety 'Tamar' (1) has no tendency toward fruit malformation; (2) disease resistance appears normal in that no particular problematic conditions arose during trials; and (3) the type of bearing is not remontant, i.e. 'Tamar' blooms continuously during late fall and winter.

Fruit shape of 'Tamar' is similar to the strawberry variety 'Dorit' (U.S. Plant Pat. No. 7,869). The fruit is longer than broad, with primary, secondary and tertiary fruit possessing almost similar shape (Table 2). The fruit is of medium firmness with a red color (Table 2).

The variety 'Tamar' flowers two months earlier than known short-day strawberry varieties. A close known variety would be 'Dorit' U.S. Plant Pat. No. 7,869 (Table 1); also see the new varieties mentioned in: U.S. Plant Pat. No. 7,881 ('Sharon'); U.S. Plant Pat. No. 7,876 ('Shalom'); U.S. Plant Pat. No. 7,865 ('Smadar'); U.S. Plant Pat. No. 8,746 ('Ofra'); U.S. Plant Pat. No. 8,748 ('Virginia'); U.S. Plant Pat. No. 8,747 ('Nama'). Additionally, early flowering results in early fruit production. Total Soluble Solids (T.S.S), percent acidity, aroma evaluation and taste are presented in Table 4, by comparing to the varieties listed in Table 3.

Plant 11,135

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TABLE 1

PLANT CHARACTERISTICS OF TAMAR	
MORPHOLOGICAL TRAIT	DESCRIPTION
<u>Classification</u>	Botanical
	<i>Fragaria L.</i> Plant
1) Height	16–19 cm
2) Diameter	31–34 cm
3) Habit	Globose
4) Density	Dense
5) Vigor	Medium
<u>Leaf:</u>	
1) Length	21–23 cm
2) Width	14–16 cm
3) Green color of Upper Side	Medium RHS ca. 147 AB
4) Blistering	Medium
5) Cross section	Concave
6) No. of leaflets	Sometimes >3
<u>Petiole</u>	
1) Length	12–14 cm
2) Thickness	3–4 mm
3) Pubescence	Medium
4) Green Color	Light RHS ca. 144 B
<u>Terminal leaflet</u>	
1) Length/Width ratio	Longer than broad
2) Shape of base	Obtuse
3) Shape of Teeth	Rounded
4) Length	5–8 cm
5) Width	5–7 cm
<u>Calyx</u>	
1) Diameter of Primary Calyx	30–50 mm
2) Diameter of Secondary Calyx	30–42 mm
3) Diameter of Tertiary Calyx	20–30 mm
4) Size of Inner Calyx in relation to Outer Calyx	same size
<u>Flower</u>	
1) Diameter of Primary Flower	25–30 mm
2) Diameter of Secondary Flower	22–29 mm
3) Diameter of Tertiary Flower	21–28 mm
4) Spacing of petals	Overlapping
5) Petal length	11–12 mm
6) Petal width	10–16 mm
7) Petal length/width	Broader than long
8) Time of beginning of flowering	Very early to early
9) Fragrance	None
<u>Stolon</u>	
1) Number per Plant	ca. 15
2) Thickness	3.5–4 mm
3) Pubescence	Weak
4) Anthocyanin coloration	Absent or very weak
<u>Inflorescence</u>	
1) Position relative to foliage	Above
2) Peduncle length	ca. 11 cm
3) Peduncle thickness	ca. 3 mm
4) Peduncle color	Light green RHS ca. 144C
5) Peduncle pubescence	medium dense

The description of 'Tamar' is based on the test guidelines for *Fragaria L.* of the International Union for the Protection of New Plant Varieties (UPOV). Only characteristics which are relevant for comparing varieties are listed; for example, there are no varietal differences acknowledged in the characteristic "color of lower side of leaf".

The Time of beginning of Flowering is scaled as from "very early" to "very late". "Very early" is defined as approximately the first week of October under the prevailing conditions, while "very late" is defined as approximately the

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first week of December. 'Tamar' is scaled as "very early to early", while 'Dorit' is between "very early to early" and "early", and 'Oso Grande' is "late to very late".

Strawberry plants have dichotome inflorescences, thus producing one primary, two secondary and four tertiary flowers per inflorescence. Flowers of higher order do not normally produce commercial fruit.

TABLE 2

FRUIT CHARACTERISTICS OF TAMAR	
CHARACTERISTIC	DESCRIPTION
<u>Time of first ripening</u>	Very early to early
<u>Primary Fruit</u>	
1) Length	50–57 mm
2) Width	45–60 mm
3) Shape	Conical
4) Weight	ca. 45 g
<u>Secondary Fruit</u>	
1) Length	48–55 mm
2) Width	38–43 mm
3) Shape	Conical
4) Weight	ca. 34 g
<u>Tertiary Fruit</u>	
1) Length	44–51 mm
2) Width	35–37 mm
3) Shape	Conical
4) Weight	ca. 24 g
<u>Fruit</u>	
1) Length	narrow
2) Unevenness of surface	Absent or very weak
3) Color	Red 44A
4) Evenness of color	Even
5) Glossiness	Strong
6) Insertion of achenes	Level with surface
7) Insertion of calyx	In a basin
8) Pose of calyx segments	Clasping or detached
9) Size of calyx in relation to fruit diameter	Smaller or larger
10) Adherence of calyx	Strong
11) Firmness	Medium
12) Color of Flesh	Orange red 43B
13) Evenness of flesh color	Uneven
14) Sweetness	Strong
15) Acidity	Medium

The Time of first Ripening, approximately one month after beginning of flowering, is scaled as from "very early" to "very late". "Very early" is defined as approximately the first week of November, while "very late" is defined as approximately the first week of January. 'Tamar' is scaled as "very early to early", while 'Dorit' is between "very early to early" and "early", and 'Oso Grande' is "late to very late". The shape of 'Tamar' fruit is similar to that of the variety 'Dorit'.

TABLE 3

COMPARATIVE YIELD OF TAMAR ^a						
	November	December	January	February	March	April
Tamar	60	60	60	80	120	120
Dorit	30	70	100	100	100	100
Ofra	50	60	60	100	100	100
Chandler	0	0	30	150	150	120

Note:

^aAverage yield in g/m², in Ramat Hadar, Israel.

The time of beginning of ripening for 'Tamar' fruit is near the end of November. The time of ripening for 'Ofra' (infra short day U.S Plant Pat. No. 8,746) fruit is "very early". The time of ripening for 'Dorit' infra short day U.S. Plant Pat. No. 7,869, fruit is between "very early to early" and "early". The time of ripening for 'Chandler' short-day U.S. Plant Pat. No. 5,262, fruit is "very late".

TABLE 4

COMPARATIVE FRUIT CHARACTERISTICS OF TAMAR

	T.S.S. ^a	Acidity ^b	Aroma ^c	Taste
Tamar	9.5-11.0	1.1	5	Very good
Dorit	8.5-9.5	1.0	5	Good
Ofra	8.0-9.5	1.0	4	Good
Chandler	6.5-7.5	0.8	4	Slightly acidic

Notes:

^aTotal Soluble Solids (Sugars) expresses fruit sweetness and was determined with a refractometer; for strawberry fruit a T.S.S. of 14.0 is very sweet, while below 6.5 is not sweet.

TABLE 4-continued

COMPARATIVE FRUIT CHARACTERISTICS OF TAMAR

^bPercent of acidity was determined as follows: 2 cc of juice extract was mixed with 20 cc of water. Five drops of phenolphthalein were added and the mixture was titrated with NaOH. The percent acidity is calculated as the quantity of NaOH (cc) \times 0.32.

^cThe aroma value is a subjective expression obtained by tasting, using a scale from 1 (no aroma) to 5 (strong aroma).

What is claimed is:

1. A new distinct variety of strawberry plant substantially as illustrated and described and distinguished as being able to grow in September and produce fruit starting in November and lasting until summer, with fruit having a good taste and shape.

* * * * *

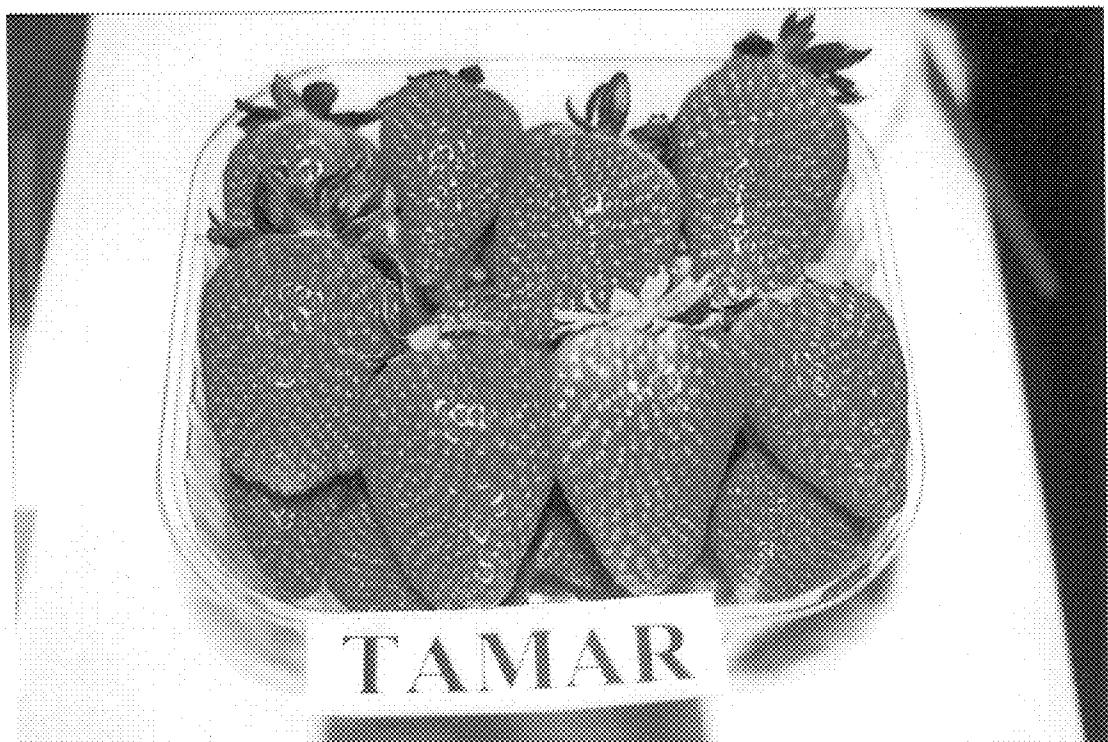


FIG 1

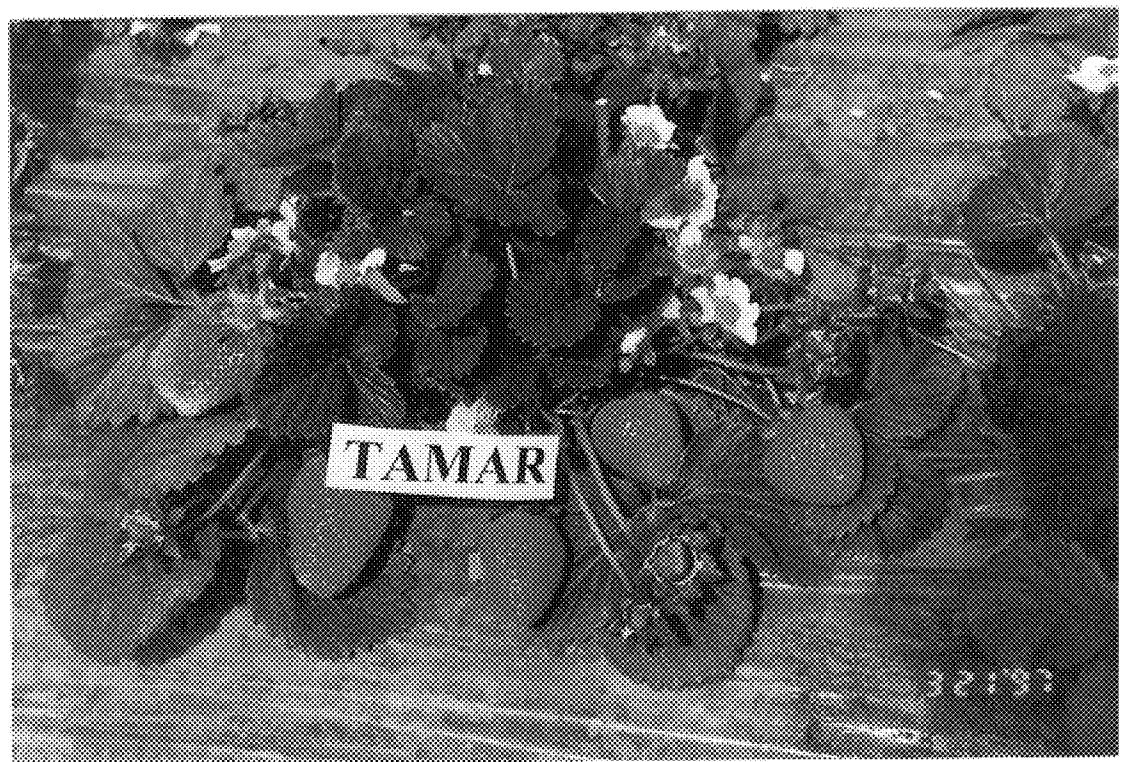


FIG 3

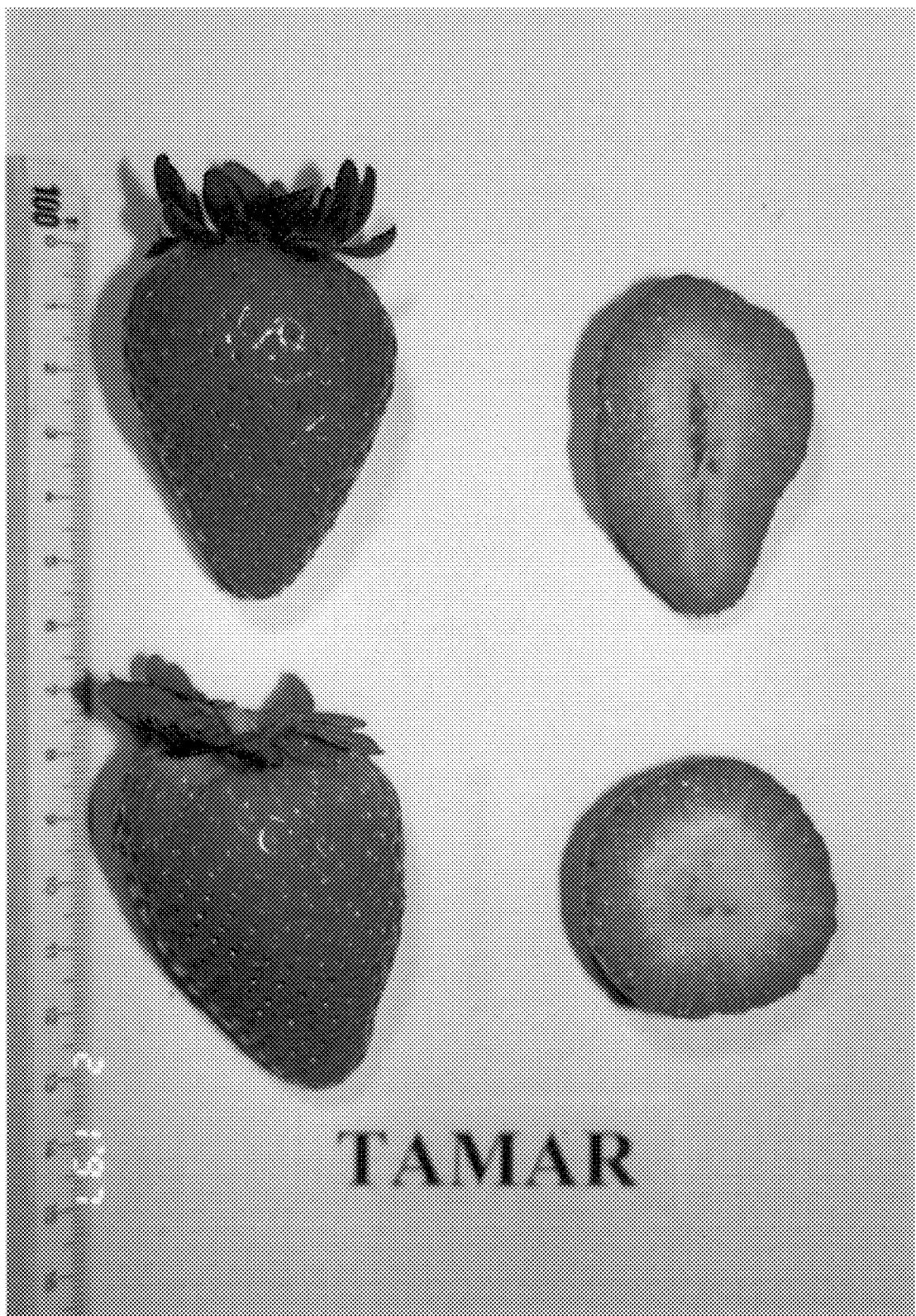


FIG 2