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Izsak et al.

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[54] **STRAWBERRY PLANT SMADAR**

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[73] Assignee: **State of Israel, Ministry of Agriculture,** Bet Dagan, Israel

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Related U.S. Application Data

[63] Continuation of Ser. No. 490,102, Mar. 6, 1990, abandoned.

[30] **Foreign Application Priority Data**

Mar. 17, 1989 [IL] Israel 1431/89

[51] **Int. Cl.**[5] **A01H 5/00**
[52] **U.S. Cl.** **Plt./48**
[58] **Field of Search** Plt./48, 49

[56] **References Cited**

U.S. PATENT DOCUMENTS

P.P. 4,487	11/1979	Bringhurst et al.	Plt. 49
P.P. 5,262	7/1984	Voth et al.	Plt. 48
P.P. 5,263	7/1984	Voth et al.	Plt. 48
P.P. 5,264	7/1984	Bringhurst et al.	Plt. 48
P.P. 5,268	8/1984	Voth et al.	Plt. 48
P.P. 6,578	1/1989	Voth et al.	Plt. 48
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P.P. 7,172	2/1990	Voth et al.	Plt. 49

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[57] **ABSTRACT**

A new and distinct variety of strawberry (Fragaria L.) called "Smadar" is disclosed. The variety is a cross between "Rachel" and "Dover A", which results in a variety that flowers several months earlier than other known strawberry varieties.

2 Drawing Sheets

This is a continuation of application Ser. No. 07/490,102, filed Mar. 6. 1990, now abandoned.

BACKGROUND OF THE INVENTION

The present invention relates to a new and distinct variety of strawberry (Fragaria L.) called "Smadar". The variety was developed from an organized scientifically designated breeding program carried out at the Agricultural Research Organization, the Volcani Center, Bet Dagan, Israel. The variety is the product of selection of seedlings resulting from crosses between the strawberry varieties "Rachel" and "Dover A". The variety was asexually vegetatively propagated through runners and the reproduction ran true.

SUMMARY OF THE INVENTION

The new variety "Smadar" resembles the variety "Dover A" is able to grow in September and produce fruit starting in November and lasting until summer. The production of fruit beginning in November is two months earlier than any known variety of Fragaria L. The fruit of the "Smadar" variety is characterized by good taste, good shape and size as well as a long shelf life.

BRIEF DESCRIPTION OF THE FIGURES

FIG. 1—Photograph of the "Smadar" variety illustrating the foliage and fruit.

FIG. 2—Photograph of the "Smadar" variety illustrating the fruit.

FIG. 3—Photograph of the "Smadar" variety illustrating the entire plant with both flowers and fruit.

DETAILED BOTANICAL DESCRIPTION OF THE INVENTION

The "Smadar" variety was grown in winter under polyethylene tunnels in Israel. "Smadar" is a short day variety that flowers earlier than other known and available short day length strawberry varieties. Flowering and fruit production is not affected by the use of polyethylene wind tunnels. This production procedure is utilized in normal agricultural practices by the skilled artisan and does not involve temperature or light control. Mother plants were stored at 0° C. from 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 Sep. 15th to the 20th with the approximate date of flowering on Oct. 27, and the approximate date of first fruiting on Nov. 27. "Smadar" flowering is not induced by chilling, but by natural exposure to short day length (long nights) characteristic of late fall and early winter. Color readings described herein were taken under natural light conditions and color identifications were made by reference to the Royal Horticul-

tural 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 "Smadar" (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 (e.g., "Smadar" blooms perpetuously, during late fall and winter).

The fruit is as long as broad, with primary, secondary and tertiary fruit possessing a slight difference in shape (Table 2). The fruit is firm with a red color (Table 2).

The variety "Smadar" flowers several months earlier than known strawberry varieties. One of the closest known varieties would be "Karina" (Table 1) as well as the new varieties under co-pending U.S. patent application Ser. Nos. 07/735,969 ("Sharon"), 07/735,695 ("Shalom"), 07/735,968 ("Dorit"), and 07/735,970 ("Saaid"). Additionally, early flowering results in early fruit production for "Smadar" and the four copending varieties (Table 3). Total Soluble Solids (TSS), percent acidity and aroma are presented in Table 4 by comparison to the varieties listed in Table 3.

TABLE 1

PLANT CHARACTERISTICS OF "SMADAR"

MORPHOLOGICAL TRAIT	DESCRIPTION[a]	COMPARABLE VARIETY[b]
Classification	Botanical-Fragaria L.	
Plant habit	Flat-Globose	"Senagana"
Plant density	Dense	"Talisman"
Plant vigor	Strong	"Grande"
Leaf:		
a) Length	17–18 cm	
b) Width	11–13 cm	
c) Color	Green Group 146 A	
1) Upper Side:	Dark	
d) Blistering	Medium	
e) Cross-section	Concave	
f) # of leaflets	Sometimes >3	
Terminal leaflet		
a) Length/Width ratio	Longer than broad	
b) Shape of base	Obtuse	
c) Shape of teeth	Rounded	
d) Length	6–7 cm	
e) Width	4–6 cm	
Flower		
a) Size	Medium	"Gorella"
b) Size of calyx to corolla	Smaller to small size	
c) Size of inner calyx versus outer calyx	Same size	
d) Spacing of petals	Overlapping	
e) Petal length/width	Longer than broad	
f) Time of flowering	Very early to Early	"Karina"[c]
Stolon		
a) Number	Medium to Many	
b) Thickness	Thin to Medium	
c) Pubescence	Medium	
d) Anthocyanin coloration	Strong	
Petiole		
a) Pose of hairs	Outwards	
b) Length	9–11 cm	
Inflorescence		
a) Position relative to foliage	Level	

TABLE 1-continued

PLANT CHARACTERISTICS OF "SMADAR"

[a]The description of "Smadar" is based on the test guidelines for Fragaria L. of the International Union for the Protection of New Plant Varieties, (UPOV).
[b]Only characteristics which are relevant for comparing varieties are listed.
[c]"Smadar" flowers at the end of October. One of the earliest known varieties for comparison is "Karina", which flowers in January.

TABLE 2

FRUIT CHARACTERISTICS OF "SMADAR"

CHARACTERISTIC	DESCRIPTION
Time of ripening	Very early to Early
Ratio of length/maximum width	As long as broad
Primary Fruit[a]	Bi-conical or Cylindrical
Length	48–50 mm
Width	35–37 mm
Secondary Fruit	Bi-conical or Cylindrical
Length	39–42 mm
Width	30–31 mm
Tertiary Fruit	Bi-conical or Cylindrical
Length	33–37 mm
Width	23–26 mm
Size	Large
Band without achenes	Very narrow to Narrow
Unevenness of surface	Weak
Color	Red
Evenness of color	Slightly Uneven
Glossiness	Medium
Insertion of achenes	Below surface
Insertion of calyx	Level with surface
Pose of calyx segments	Clasping
Size of calyx in relation to fruit diameter	Larger
Adherance of calyx	Strong
Firmness	Firm
Color of Flesh	Light red
Evenness of flesh color	Even
Sweetness[b]	Strong
Color	43 AB circa (RHSCC)
Taste[b]	Good

[a]There is a marked difference between the shape of the primary, secondary and tertiary fruit.
[b]See Table 4.

TABLE 3

COMPARATIVE YIELD OF "SMARDAR"[a]

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Smadar	50	70	100	100	100	50
Sharon[b]	40	60	80	80	80	80
Shalom[c]	50	70	80	100	100	70
Dorit[d]	30	70	100	100	100	100
Saaid[e]	0	70	100	100	100	100
Douglas[f]	0	0	40	150	150	150
Chandler[g]	0	0	30	150	150	120

[a]Average yeild in g/m^2 in Ramat Hadar, Israel (1989–90). The time of ripening for "Smadar" fruit is very early to early.
[b]U.S. Application Ser. No. 07/735,969. The time of ripening for "Sharon" fruit is very early.
[c]U.S. Application Ser. No. 07/735,695. The time of ripening for "Shalom" fruit is early.
[d]U.S. Application Ser. No. 07/735,968. The time of ripening for "Dorit" fruit is early.
[e]U.S. Application Ser. No. 07/735,970. The time of ripening for "Saaid" fruit is early to medium.
[f]Plant Patent No. 4,487. The time of ripening for "Douglas" fruit is late.
[g]Plant Patent No. 5,262. The time of ripening for "Chandler" fruit is late.

TABLE 4

COMPARATIVE FRUIT CHARACTERISTICS OF "SMADAR"

	T.S.S.[a] in %	Acidity[b] in %	Aroma	Taste
Smadar	8.5–9.5	1.0	5	Good
Sharon[c]	6.5–7.0	1.0	3	Slightly Acidic
Shalom[d]	8.0–9.0	1.0	4	Normal
Dorit[e]	8.5–9.5	1.0	5	Good
Saaid[f]	8.0–9.0	1.0	3	Normal
Douglas[g]	6.5–7.0	0.8	3	Slightly Acidic
Chandler[h]	6.5–7.0	0.8	3	Slightly Acidic

TABLE 4-continued

COMPARATIVE FRUIT CHARACTERISTICS OF "SMADAR"

	T.S.S.[a] in %	Acidity[b] in %	Aroma	Taste

[a]Total Soluble Solids expresses fruit sweetness and was determined with a refractometer.
[b]Percent of acidity was determined as follows: 2 cc of juice extract was mixed with 20 cc of water. Five drops of fenolfthaleinen was added and the mixture was titrated with NaOH. The percent acidity is calculated as the quantity of NaOH (cc) × 0.32.
[c]U.S. Application Ser. No. 07/735,969.
[d]U.S. Application Ser. No. 07/735,695.
[e]U.S. Application Ser. No. 07/735,968.
[f]U.S. Application Ser. No. 07/735,970.
[g]Plant Patent No. 4,487.
[h]Plant Patent No. 5,262.

What is claimed is:

1. A new distinct variety of strawberry 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 and a long shelf life.

* * * * *

FIG. 1

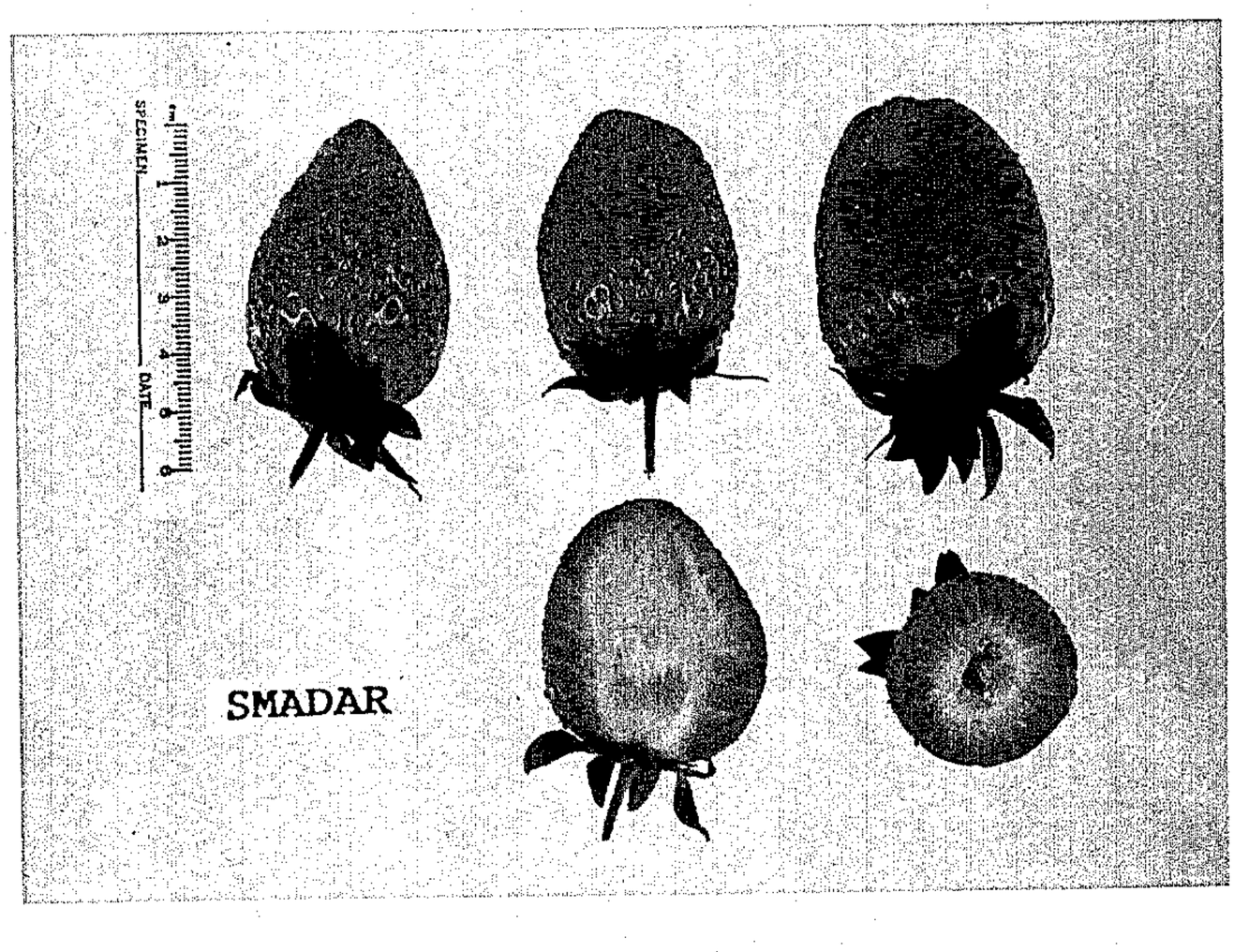

FIG. 2

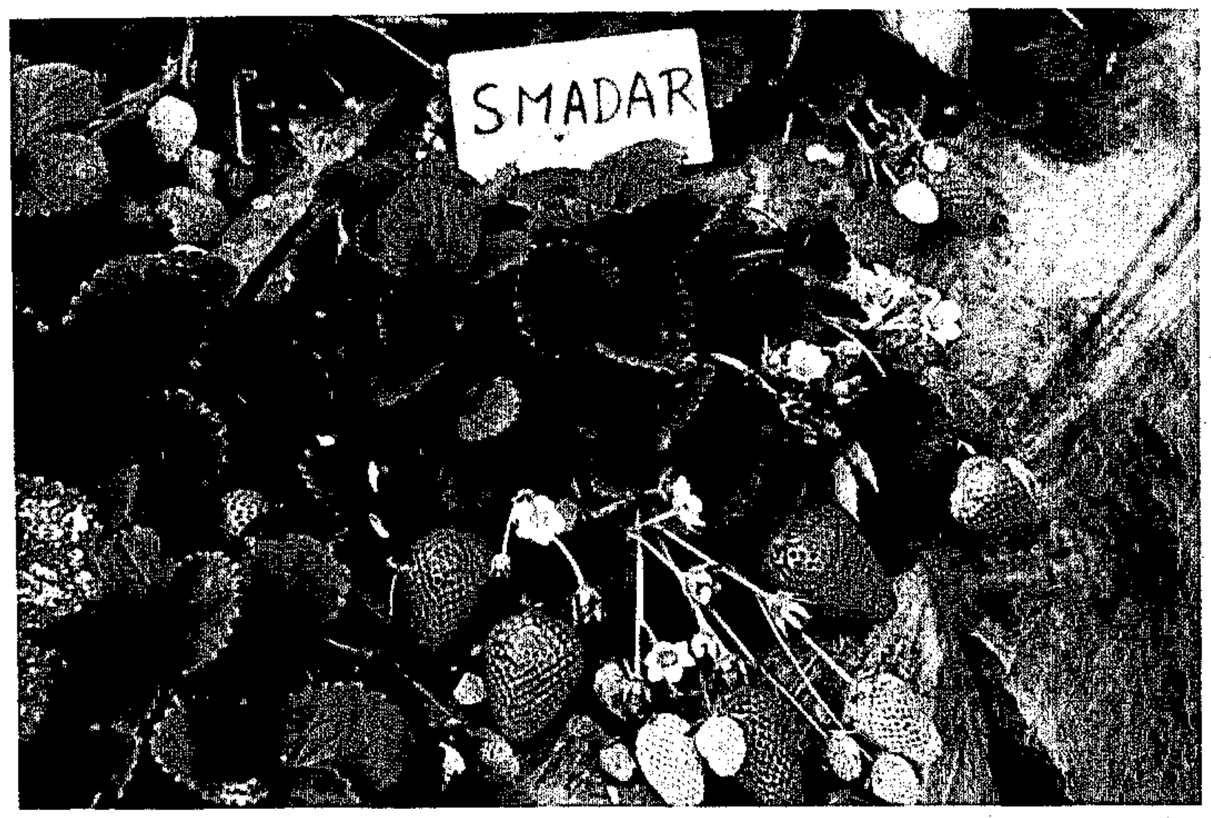

FIG. 3