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

(10) **Patent No.: US PP33,634 P2**
(45) **Date of Patent: Nov. 16, 2021**

(54) **PISTACHIO ROOTSTOCK NAMED 'UCB1-D14'**

(50) Latin Name: ***Pistacia atlantica* X *Pistacia integerrima***
Varietal Denomination: **UCB1-D14**

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(*) 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.: **17/117,076**

(22) Filed: **Dec. 9, 2020**

(51) **Int. Cl.**
A01H 5/00 (2018.01)
A01H 6/00 (2018.01)

(52) **U.S. Cl.**
USPC **Plt./152**

(58) **Field of Classification Search**
USPC Plt./152
See application file for complete search history.

(56) **References Cited**

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(57) **ABSTRACT**

Disclosed is a new and distinct variety of pistachio rootstock called 'UCB1-D14' characterized in that it has greater rootstock growth, greater scion growth and superior crop yield.

7 Drawing Sheets

Latin name: *Pistacia atlantica* X *Pistacia integerrima*.
Varietal denomination: 'UCB1-D14'.

CROSS-REFERENCES TO RELATED APPLICATIONS

The present variety was developed as part of a breeding program which produced at least one other pistachio rootstock, 'UCB1-D11' (patented) which is the subject of U.S. Plant Pat. No. 30,913 (Ser. No. 16/350,697).

BACKGROUND OF THE NEW VARIETY

The present invention comprises a new and distinct cultivar of hybrid pistachio (*Pistacia atlantica* (not patented) x *Pistacia integerrima* (not patented)) used as a rootstock known by the varietal name 'UCB1-D14.' The variety 'UCB1-D14,' is an in vitro, single selection of the segregating controlled cross of (*P. atlantica* x *P. integerrima*) made at Davis, Calif. The purpose of the selection program was to develop rootstocks that when grafted with common varieties produced superior vigor and crop yields. The present variety exhibits greater vigor and productivity than 'UCB1-D1' (not patented) rootstock. The present variety has

higher resistance to *Verticillium* disease than the female parent, *Pistacia atlantica*. The present variety has higher cold tolerance than the male parent, *Pistacia integerrima*.

The following characteristics distinguish clone 'UCB1-D14' from the industry standard, 'UCB1-D1' (not patented) rootstock:

1. Greater rootstock growth.
2. Greater scion growth.
3. Superior crop yield.
4. The present variety differs from the industry standard 'UCB1-D1' (not patented) rootstock in that it has produced an average yield per acre that is almost double that of 'UCB1-D1'. The present variety differs from rootstock 'UCB1-D11' (patented) in that the present variety has a slightly larger rootstock circumference, and produces a slightly smaller average yield per acre than the 'UCB1-D11' (patented).

ASEXUAL REPRODUCTION OF THE NEW VARIETY

In 1999, seeds from 'UCB1' were sprouted, tissue cultured, and micro-propagated into plants. Several plants, each

from a different seed, were selected based on their ability to be propagated, and grown into small plants in a laboratory. The present variety ('UCB1-D14') is one of the plants that came from one of these seeds that was germinated in culture. That plant of the present variety was then propagated by tissue culture to make many clones. In 2002, approximately five of these clones of the present variety were planted in Kern County, Calif. as rootstock trees onto which 'Kerman' (not patented) scions were grafted. The trees were then grown for several years. In 2014, observations of the five trees were made with encouraging results.

Asexual reproduction of the new and distinct variety of rootstock was accomplished at Hughson, Calif. in 2015 by taking shoot tissues from the rootstock part of the trees in the field, introducing the tissues into in vitro culture conditions, and propagating the resulting in vitro shoots using micro-propagation techniques. The shoots were sub-cultured and multiplied until desired numbers were obtained and then transferred to rooting stage media. Plantlets were then transferred to a peat:perlite media in acclimation chambers under 100% humidity. Field environmental parameters were gradually introduced to harden plantlets which were then successively transferred to larger pots in the greenhouse as their size increased. These potted trees were planted in 2016 and used to establish field performance trials. Subsequent evaluations have shown those asexual reproductions are true-to-type to the original rootstock selection. All characteristics of the original tree were established and appear to be transmitted completely through succeeding asexual propagations.

SUMMARY OF THE NEW VARIETY

The 'UCB1-D14' rootstock of the present invention is characterized by its greater vigor, productivity. In all test years, in comparison to the industry standard rootstock, 'UCB1-D1' (not patented), the present 'UCB1-D14' variety had greater rootstock growth (approximately 1.27 times as great), greater scion growth (approximately 1.22 times as great), and superior yield (approximately 1.96 times as great in 2020, and approximately 2.13 times as great averaged over the 2014-2020 years, excluding 2015).

DESCRIPTION OF THE ILLUSTRATIONS

The accompanying photographic illustrations show typical specimens of vegetative growth of the new variety, with the color being as nearly true as is possible with color illustrations of this type:

FIG. **1** shows an 18-year old pistachio tree having a rootstock of the new variety.

FIG. **2** is a close up view of an 18-year old rootstock of the new variety.

FIG. **3** shows several 4-month old trees of the new variety.

FIG. **4** shows one of the 4-month old trees of the new variety.

FIG. **5** shows a close up of one of the 4-month old trees of the new variety.

FIG. **6** shows a top view of the leaves of one of the 4-month old trees of the new variety.

FIG. **7** shows an underneath view of the leaves of one of the 4-month old trees of the new variety.

DESCRIPTION OF THE NEW VARIETY

The following detailed description sets forth the characteristics of the new variety. The data which defines these characteristics was collected under natural daylight on plants grown in the field in the central valley of California in Kern and Stanislaus County. Descriptions may vary in slight detail due to climatic, soil and cultural conditions under which the variety may be grown. Color designations are presented with reference to the Inter-Society Color Council, National Bureau of Standards published in 1976, except where common color names are also included.

TREE

Tree height at approximately 4 months of age averages 4.9 in.

Trunk bark color is gray [13-A-1] striped with olive [15-J-7].

Trunk diameter at 24 inches above soil surface could not be measured (most plants were not this tall): trunk diameter right above soil surface averages 2.0 mm.

Trunk lenticels were too small to measure at the time of data recording but are circular in shape and bamboo [13-I-7] in color.

On 18-year old tree, trunk bark of rootstock is rough.

FOLIAGE

Leaves are pinnately compound composed of opposite leaflets numbering between 7 and 9.

Compound leaf size variations are great but average approximately 14.6 cm in length and 7.4 cm in width.

Young leaflets are glossy and light green [19-I-8] on the upper surfaces and yellow-green [19-I-6] on the lower surfaces.

Older leaf surfaces are glossy and dark green [23-H-11] on upper surfaces and green [21-J-9] on the lower surfaces.

Leaflet shape is lanceolate with an acute apex and cuneate base.

There is significant variation in leaflet size depending on the position on the tree. Leaflet size varies considerably but averages 3.95 cm in length and 1.33 cm in width.

Leaflet venation pattern is pinnate and venation is strong yellowish green [18-K-8]. The midrib is prominent and the same color as the venation pattern.

Leaflet margins are entire and surfaces are glabrous.

Petiole and rachis upper and lower surface colors are the same which are predominately yellowish green [20-F-6], slightly duller/more bronzed than venation.

Petiole length varies considerably but averages 29 mm in length from point of attachment to the stem to the first pair of leaflets, and is glabrous with no wings.

Rachis length varies considerably and averages 82 mm in length above the first pair of leaflets.

DISEASE/COLD TOLERANCE

The present variety has higher resistance to *Verticillium* disease than the female parent, *Pistacia atlantica.*

The present variety has higher cold tolerance than the male parent, *Pistacia integerrima.*

Having thus described and illustrated the new variety of rootstock, what is claimed as new and desired to be secured by plant Letters Patent is:

1. A new and distinct variety of pistachio rootstock substantially as illustrated and described called 'UCB1-D14' characterized in that, when compared to the industry

standard 'UCB1-D1' rootstock, it has greater rootstock growth, greater scion growth and superior crop yield.

* * * * *

FIG. 1

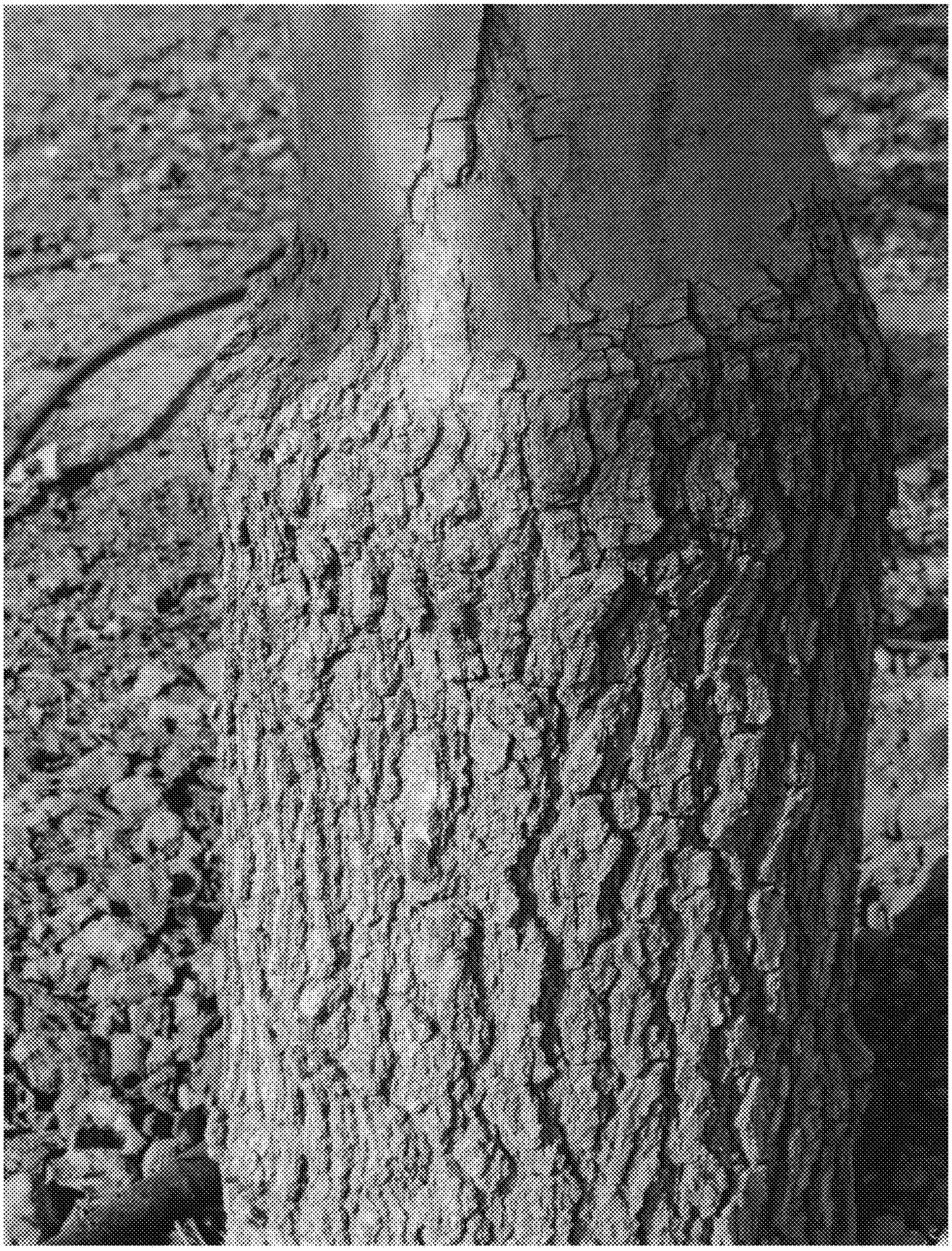

FIG. 2

FIG. 3

FIG. 4

FIG. 5

FIG. 6

FIG. 7

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : PP33,634 P2
APPLICATION NO. : 17/117076
DATED : November 16, 2021
INVENTOR(S) : Ash et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Specification

Column 4, Lines 5-8, replace:
"Color designations are presented with reference to the Inter-Society Color Council, National Bureau of Standards published in 1976, except where common color names are also included"

With:
-- All major color code designations are by reference to the Dictionary of Color by Maerz & Paul, First Edition 1930. Common color names are also used. --

Signed and Sealed this
Twelfth Day of April, 2022

Drew Hirshfeld
Performing the Functions and Duties of the
Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office