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Yencho et al.

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(54) **SWEETPOTATO PLANT NAMED 'NCORNSP-021SHJB'**

(50) Latin Name: ***Ipomoea batatas* (L.) Lam.**
Varietal Denomination: **NCORNSP-021SHJB**

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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 56 days.

(21) Appl. No.: **15/330,763**

(22) Filed: **Nov. 4, 2016**

(51) **Int. Cl.**
A01H 5/12 (2018.01)
A01H 5/06 (2018.01)

(52) **U.S. Cl.**
USPC **Plt./258**
CPC ***A01H 5/06*** (2013.01); ***A01H 5/12*** (2013.01)

(58) **Field of Classification Search**
USPC Plt./258
See application file for complete search history.

(56) **References Cited**

PUBLICATIONS

UPOV hit on Sweet Potato plant named, 'NCORNSP-021SHJB', CA PBR 16-8969, Jul. 8, 2016 (Year: 2016).*

* cited by examiner

Primary Examiner — Anne Marie Grunberg
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(57) **ABSTRACT**

'NCORNSP-021SHJB' is a moderately compact, to compact, non-twining, slightly upright variety producing many short shoots. It is distinguishable from other cultivars by its purple heart shaped leaves that are entire with a cordate base; a moderately compact to compact habit and semi-erect mounding plant architecture. The purple leaves of this plant, short internodes, and the plant architecture are what make 'NCORNSP-021SHJB' unique amongst the current ornamental sweetpotatoes in the marketplace. 'NCORNSP-021SHJB' also exhibits very good vigor and is very well branched. In greenhouse and field trials conducted since 2013, 'NCORNSP-021SHJB' has been shown to be much less vigorous than *Ipomoea batatas* 'Margarita' and 'Blackie' and is suitable for use as a landscape or containerized plant. The production of flowers by 'NCORNSP-021SHJB' is sporadic under short day conditions.

4 Drawing Sheets

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Latin name of the genus and species: The Latin name of the novel, ornamental plant variety disclosed herein is *Ipomoea batatas* (L.) Lam.

Variety denomination: The inventive cultivar of *Ipomoea batatas* disclosed herein has been given the varietal denomination 'NCORNSP-021SHJB'.

BACKGROUND OF THE INVENTION

Ipomoea batatas is a member of the morning glory family Convolvulaceae. This species is grown worldwide and it exhibits a wide range of plant forms and colors. The cultivated members of *Ipomoea batatas* grown by farmers worldwide are commonly produced for consumption of their nutritious, enlarged storage roots. These types typically produce a fast growing green vine that has a wide variety of leaf shapes ranging from palmate and deeply lobed, to cordate or triangular shaped leaves with no lobes.

Like their edible forms, *Ipomoea batatas* ornamental sweetpotato (OSP) plants are a heat-loving, drought-tolerant, perennial vine typically grown as an annual. However, ornamental sweetpotato plants are distinguished from the edible cultivated forms in that they possess unique foliage colors, leaf shapes, and growth habits, giving them significant value in the ornamental marketplace.

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Ornamental sweetpotatoes are desirable in the landscape and ornamental industries because their foliage comes in a wide variety of colors (e.g. pale yellow to dark purple with some exhibiting temporal and individual leaf color variegation patterns) and plant shapes (e.g. mounded and very compact to prostrate and highly spreading). They can be grown in a potted plant and/or mixed planting format, and they have the ability to cover a large space or hang over walls and decorative pots creating brightly colored and textured backdrops in gardens and patios. Most ornamental sweetpotatoes continue to grow throughout the entire growing season and require little maintenance. Moreover, these plants have few insect or disease problems.

To meet the growing horticultural demand for ornamental sweetpotatoes, it is desirable to produce new cultivars of ornamental sweetpotato with new or improved foliage colors, variegation patterns, leaf shapes, and plant architectures. In addition, it would be advantageous to develop cultivars of ornamental sweetpotato exhibiting a more compact growth habit that do not out-compete other species in mixed containers.

'NCORNSP-021SHJB' was bred to meet the increasing demand for new ornamental sweetpotatoes. 'NCORNSP-021SHJB' is a moderately compact, to compact, non-twining, slightly upright variety producing many short shoots. It is distinguishable from other ornamental sweetpotato culti-

vars by its purple heart-shaped leaves that are entire with a cordate base; a moderately compact, to compact habit and semi-erect mounding plant architecture. The purple leaves of this plant, short internodes, and the plant architecture are what make 'NCORNSP-021SHJB' unique amongst the current ornamental sweetpotatoes in the marketplace. 'NCORNSP-021SHJB' also exhibits very good vigor and is very well branched. In greenhouse and field trials conducted since 2013, 'NCORNSP-021SHJB' has been shown to be much less vigorous than the *Ipomoea batatas* OSP 'Margarita' and 'Blackie' and is suitable for use as a landscape or containerized plant. The production of flowers by 'NCORNSP-021SHJB' sporadic under short day conditions.

Lineage. 'NCORNSP-021SHJB' (breeding designation NC8219-006ORN) originated from open pollinated seed harvest from the proprietary *Ipomoea batatas* breeding line NC6751-045ORN (the female parent; not patented). Botanical seed was harvested from this and other ornamental sweetpotato lines planted in our summer advanced ornamental replicated trials between June of 2012 and November of 2012 in Clinton, N.C. NC6751-045ORN resulted from a conventional cross between the proprietary *Ipomoea batatas* breeding lines NC4855-001ORN (the female parent; not patented) and 'Sweet Caroline Sweetheart Red' (the male parent; U.S. Plant Pat. No. 19,013). Botanical seed from this half-sib family was planted in the greenhouse in December 2012. The first cycle of selection on the population was exercised in the seedling trays and survivors were transferred to a single 6-inch pot, which was then maintained in the greenhouse. Cuttings (2 each) were taken from the plants in April and planted in the field as 2-plant unreplicated plots during mid-June 2013. The single, individual plant now known as 'NCORNSP-021SHJB' was selected Sep. 6, 2013 based on its combination of exceptional features, and has been propagated asexually since that time.

Asexual Reproduction. Since its selection, *Ipomoea batatas* 'NCORNSP-021SHJB' has been asexually reproduced in North Carolina predominantly by vegetative propagation of vine cuttings. Successively, there have been four cycles of vegetative propagation, one cycle of tissue culture micropropagation, and multiple vegetative propagation cycles to increase the plant population. Asexual reproduction of 'NCORNSP-021SHJB' by cuttings has shown that the unique features of the new cultivar are stable and the plant reproduces true to type in successive generations.

SUMMARY OF THE INVENTION

NCORNSP-021SHJB' is a moderately compact, to compact, non-twining, slightly upright variety producing many short shoots. It is distinguishable from other cultivars by its purple heart-shaped leaves that are entire with a cordate base; a moderately compact, to compact habit and semi-erect mounding plant architecture. The purple leaves of this plant, short internodes, and the plant architecture are what make 'NCORNSP-021SHJB' unique amongst the current ornamental sweetpotatoes in the marketplace. 'NCORNSP-021SHJB' also exhibits very good vigor and is very well branched. In greenhouse and field trials conducted since 2013, 'NCORNSP-021SHJB' has been shown to be much less vigorous than *Ipomoea batatas* 'Margarita' and 'Blackie' and is suitable for use as a landscape or containerized plant. The production of flowers by 'NCORNSP-021SHJB' is sporadic under short day conditions.

BRIEF DESCRIPTION OF THE DRAWINGS

The photographs in the drawings were made using conventional techniques and show the colors as true as reasonably possible by conventional photography. Colors in the photographs may differ slightly from the color values cited in the detailed botanical description, which accurately describe the colors of the new *Ipomoea batatas.*

FIG. **1** is a color photograph of a typical specimen of greenhouse grown *Ipomoea batatas* 'NCORNSP-021SHJB' in a 6-inch pot from the top, 50 days after planting.

FIG. **2** is a color photograph of a typical specimen of *Ipomoea batatas* 'NCORNSP-021SHJB' from the side, 50 days after planting.

FIG. **3** is a color photograph showing the variety of leaves produced by *Ipomoea batatas* 'NCORNSP-021SHJB' and the lower surface of the leaf (bottom row) 50 days after planting

FIG. **4** is a color photograph showing the variety of roots produced by *Ipomoea batatas* 'NCORNSP-021SHJB' in the field, 115 days after planting.

DETAILED BOTANICAL DESCRIPTION OF THE NEW VARIETY

The following is a detailed description of the botanical characteristics of a new and distinct cultivar of *Ipomoea batatas* plant known by the cultivar name 'NCORNSP-021SHJB'. All colors cited herein refer to The Royal Horticulture Society Colour Chart designations (The Royal Horticultural Society, London, 1995, 4th ed.) except where general terms of ordinary dictionary significance are used. Plant descriptions are based on the standardized international sweetpotato descriptors established jointly by the International Potato Center (CIP), Lima, Peru; The Asian Vegetable Research and Development Center (AVRDC), Taipei, Taiwan; and the International Board for Plant Genetics Resources (IBPGR), Rome, Italy (CIP, AVRDC, IBPGR. 1991. Descriptors for Sweet Potato. Huaman, Z., editor. International Board for Plant Genetic Resources, Rome, Italy, 134pp.). Where dimensions, sizes, colors, and other characteristics are given, it is to be understood that such characteristics are approximations or averages set forth as accurately as practicable.

The descriptions reported herein are from a group of 50-day-old specimens grown individually in six-inch azalea pots. The plants were grown in Raleigh, N.C., under commercial practice in a glass-covered greenhouse, where, during the fall, day and night temperatures range between 30-40° C. and 22-26° C., respectively. After rooting, plants were treated with 200 ppm 20-10-20 fertilizer daily. Plant measurements were taken in November 2015 in Raleigh, N.C. *Ipomoea batatas* 'NCORNSP-021SHJB' has not been observed under all possible environmental conditions; therefore, the phenotype may vary under different environmental conditions such as season, temperature, light intensity, day length, cultural conditions, and the like, without however, any variance in the genotype.

Classification:

Botanical name.—*Ipomoea batatas* (L.) Lam.

Common name.—Ornamental Sweetpotato.

Variety name.—'NCORNSP-021SHJB'.

Growth conditions: *Ipomoea batatas* 'NCORNSP-021SHJB' has very good vigor and a moderate growth rate. In locales with mild winter conditions, *Ipomoea batatas* 'NCORNSP-021SHJB' will grow perennially; otherwise it is an annual plant. Similar to other cultivated sweetpotatoes, wind or rain rarely causes much damage to 'NCORNSP-020BWL, but if damage does occur, the plant drops the damaged leaves and grows new shoots at nodes where the leaves were lost.

Aboveground structure and coloration: FIGS. **1**, **2**, **3** and **4** show the shape and coloration of a typical specimen of *Ipomoea batatas* 'NCORNSP-021SHJB'. Color may vary somewhat in response to temperature and nutrient stress. Overall, this cultivar is a moderately compact to compact, non-twining, slightly upright herbaceous plant that has an average height of ~18 cm and an average area spread of ~42.9 cm. The growth habit of this plant is to grow slightly upright with shoots growing outward.

Branches:

Branching habitat.—Freely-branching with ~2-3 primary lateral branches coming off the stem. Dense foliage and no pinching is required to stimulate branching. Branch texture is smooth.

Vegetative lateral branching.—Length: ~30.5 cm. Diameter: ~0.6 cm. Internodes are short with an average length of ~1.6 cm.

Secondary lateral shoots.—Many lateral branches are formed and each axil has latent shoots. Length: ~3.3 cm. Diameter: ~0.4 cm. Internodes are very short with an average length of ~0.9 cm.

Stem.—Round and smooth with a slightly upward, outward, and slightly undulating aspect and very strong, slightly flexible, non-brittle strength. Color: Purple (RHS N77A-N79A).

Adventitious roots.—Present at nodes. Color: Yellow green (RHS N144A) with purple (RHS N77A).

Petiole.—Petioles are held slightly upward and display the leaf horizontally. Leaf petiole has a smooth texture with a matte finish. Length: ~10.8 cm. Diameter: ~0.4 cm. Color: Purple (RHS N77A).

Foliage: Leaves are alternate and tend to slightly spiral around the stem. They are cordate and entire. Leaves have 0 lobes per leaf. Leaf shape is somewhat variable as is size (see FIG. **3**).

Quantity.—Moderately-heavily foliated, with ~26 leaves per lateral branch.

Mature leaf length.—~10.3 cm.

Mature leaf width.—~9 cm.

Leaf margin.—Entire.

Leaf apex.—Acute.

Leaf base.—Cordate.

Leaf texture.—Smooth texture and matte finish.

Venation.—Pinnate to cross-venulate. Texture: Smooth.

Color.—Leaves are yellow green when immature, maturing to purple and range within those palates as they mature. See also Table 1.

TABLE 1

Leaf color of*Ipomoea batatas* 'NCORNSP-021SHJB'.

Leaf Structure	Upper Surface	Lower Surface
Young Leaf	Yellow Green (RHS144A) and slightly	Yellow Green (RHS 145A-B) and slightly

TABLE 1-continued

Leaf color of*Ipomoea batatas* 'NCORNSP-021SHJB'.

Leaf Structure	Upper Surface	Lower Surface
	Greyed Purple (RHS N186C)	Greyed Purple (RHS N187A)
Mature Leaf	Greyed Purple (RHS N186A-N186B)	Greyed Purple (RHS N187A)
Vein- mature leaf	Greyed Purple (RHS N186B)	Purple (RHS N79B)
Vein - young leaf	Yellow Green (RHS 144A)	Yellow Green (RHS 145A-145B) with slight Greyed Purple (RHS N187A) on midrib

Inflorescence: *Ipomoeu batatas* 'NCORNSP-021SHJB' flowers sporadically throughout the season in response to a variety of stressful conditions (e.g., drought, nutrient stress, cloudy weather). Shorter day lengths enhance flowering, but the precise photoperiod for flower induction is currently unknown. Solitary, regular funnel-form flowers arising from leaf axils on secondary lateral branches are formed. Peduncles are purple (RHS N77A) and have a smooth texture. Peduncle length: ~4.8 cm, peduncle width: ~0.3 cm. Flower buds are pink (RHS 75A-75D) and elliptic. Flower bud length: ~2.2 cm, flower bud width: ~0.5 cm. Corolla width: ~3.6 cm, corolla length: ~3.6 cm. Limb color: Light purple (RHS 76D-76C) on the outer surface and light purple (RHS 76B-76C) on the inner surface with a slight white eyezone. The inner throat color gets lighter from base to limb going from light purple (RHS 76A) at the base to lighter purple (RHS N80A-N80B) near the limb. The limb is pentagonal with slight fragrance. The flower averages five sepals. The two outer sepals are shorter than the inner sepals. Average sepal length: ~0.9 cm, average sepal width: ~0.4 cm. The sepals are obovate with an obtuse to caudate apex and are purple (RHS N77A-N77B) to slight green (RHS 146B-146C) in color. Sepal texture is glabrous on both the upper and lower surface. A single pistil consists of one style and one stigma ~1.8 cm in length. The stigma is white (RHS 157D) and the style is white (RHS 157A). The stigma is slightly relative to the stamens. The ovary is greyed yellow (RHS 160A) and superior with two locules that contain one or two ovules. At the base of the ovary are orange basal glands (RHS 163A) containing nectar, which cover halfway up the ovary. The flower averages five stamens. Each stamen consists of a single cream-white-slight pink filament averaging ~1.1 cm in length topped with a single cream anther averaging ~0.2 cm in length. Filament color: cream white-slight pink (RHS N155C, 76C). Anther color: cream (RHS 155A). Pollen color: cream (RHS 155A). Pollen amount is sparse. Fruit has not been observed under normal greenhouse conditions.

Storage root coloration: *Ipomoea batatas* 'NCORNSP-021SHJB' forms no, to small, underground storage roots that are occasionally malformed and do not meet USDA Sweetpotato Storage Root Grade Standards (see FIG. **4**). Fibrous roots are typically cream (RHS 155B) with purple (RHS 77A-77B). Storage roots that are formed possess purple (RHS N79A-N79B, N77B) skin and a greyed orange flesh (RHS 167B-167D) with a thick cream (RHS 158A-158B) cortical ring.

Disease or pest resistance: 'NCORNSP-021SHJB' is susceptible to whiteflies and spidermites in a greenhouse

environment. 'NCORNSP-021SHJB' is susceptible to damage by Japanese beetles under outdoor conditions. The susceptibility of 'NCORNSP-021SHJB' to other known insects and pathogens of sweetpotato is unknown. Under low light conditions, slight edema may occur.

Comparison with other *Ipomoea batatas* cultivars: 'NCORNSP-021SHJB' is very distinct based on leaf shape and plant architecture. Of the common cultivars of ornamental sweetpotato, 'NCORNSP-021SHJB' is best compared with the 'Sweet Caroline Sweetheart Purple' (U.S. Plant Pat. No. 18,573) and 'NCORNSP-019SCSHLM' (U.S. Plant Pat. No. 28,318) cultivars (Table 2). Like 'Sweet Caroline Sweetheart Purple', 'NCORNSP-021SHJB' has purple leaves. However, the leaves of 'NCORNSP-021SHJB" are cordate with a cordate base compared to those of 'Sweet Caroline Sweetheart Purple, which are deltoid with a deltoid base. 'NCORNSP-019SCSHLM' has yellow green leaves with yellow green tips, while 'NCORNSP-021SHJB' has greyed purple leaves with yellow green tips.

In addition, 'NCORNSP-021SHJB' has a moderately compact to compact, slightly upright, non-twining plant habit compared with the moderately compact to compact, upright, non-twining plant habit of 'Sweet Caroline Sweetheart Purple' and the moderately compact to compact, upright, non-twining habit of 'NCORNSP-019SCSHLM'. Furthermore, 'NCORNSP-021SHJB' has a larger average leaf size compared with the smaller leaves of 'Sweet Caroline Sweetheart Purple' and 'NCORNSP-019SCSHLM'.

TABLE 2

Comparison of 'NCORNSP-021SHJB' with other *Ipomoea batatas* cultivars.

Characteristic	'NCORNSP-021SHJB'	'Sweet Caroline Sweetheart Purple'	'NCORNSP-019SCSHLM'
Plant Habit	Moderately Compact to Compact, Non-Twining, Slightly Upright	Moderately Compact to Compact, Non-Twining, Upright	Moderately Compact to Compact, Non-Twining, Slightly Upright
Average Leaf Length and Width	Length: 10.3 cm Width: 9.0 cm	Length: 9.9 cm Width: 6.9 cm	Length: 8.5 cm Width: 6.6 cm
Foliage Color	Greyed purple (RHS N186A-N186B) with yellow green (RHS 144A) to slightly greyed purple tips (RHS N186C)	Greyed purple brown (RHS N200A, N186A-N186B) with brown yellow green (RHS N200A, 146B-146C) tips	Yellow green (RHS 144A-144B) with yellow green (RHS 144A-144B) tips
Leaf Shape	Entire. Cordate with cordate base	Entire. Deltoid with deltoid base	Entire. Cordate with cordate base

We claim:

1. A new and distinct cultivar of *Ipomoea batatas* plant named 'NCORNSP-021SHJB', substantially as illustrated and described herein.

* * * * *

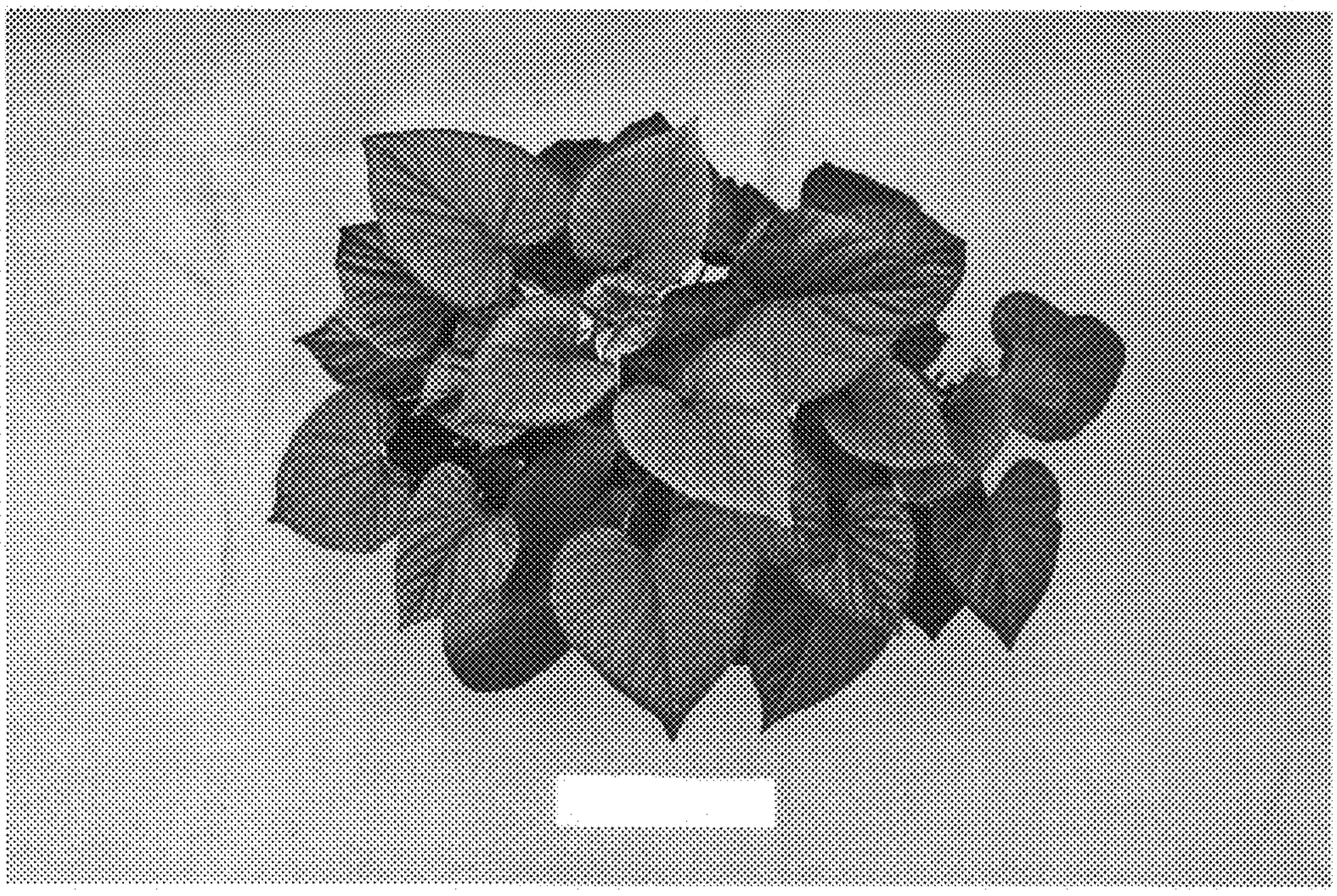

Fig. 1

Fig. 2

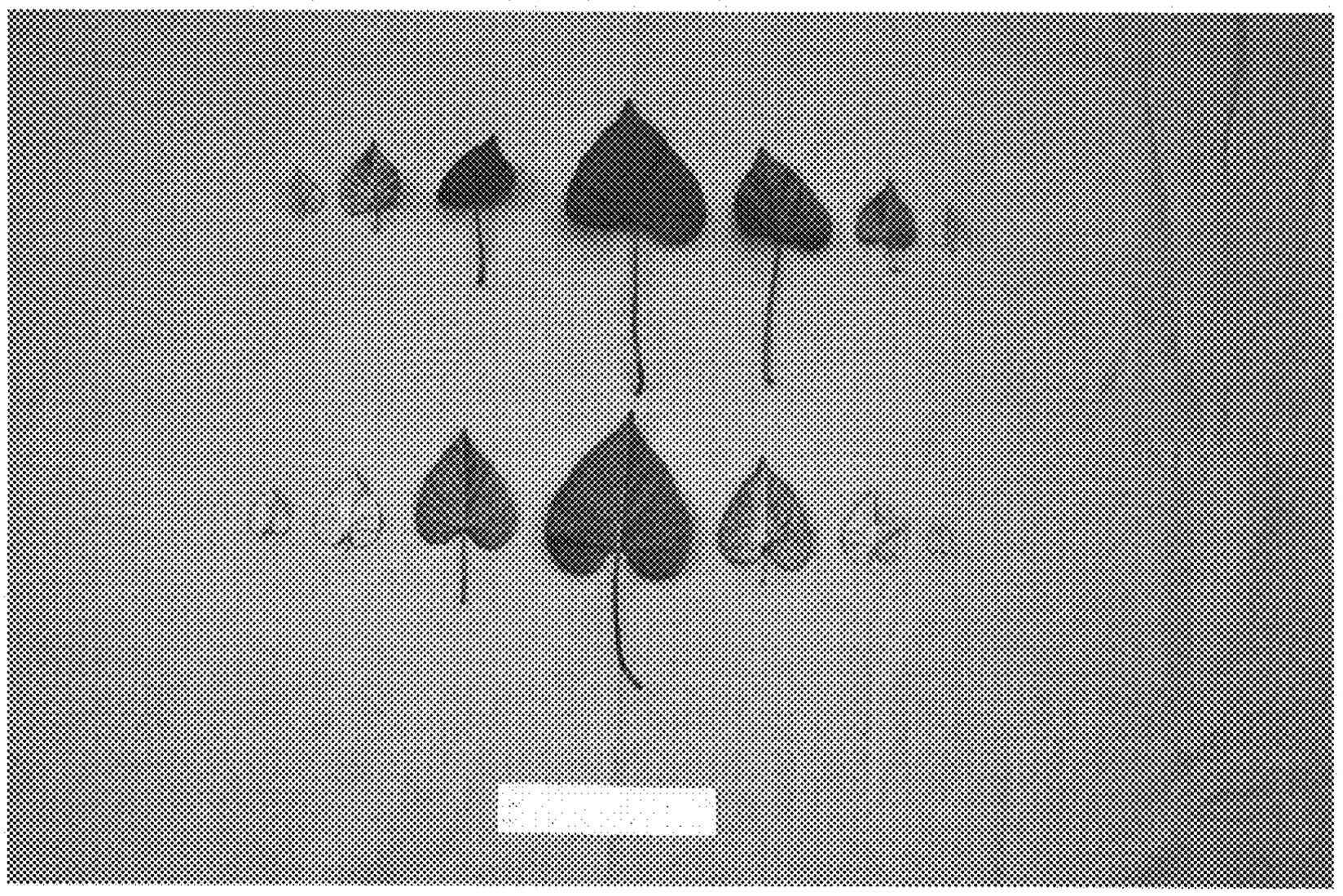

Fig. 3

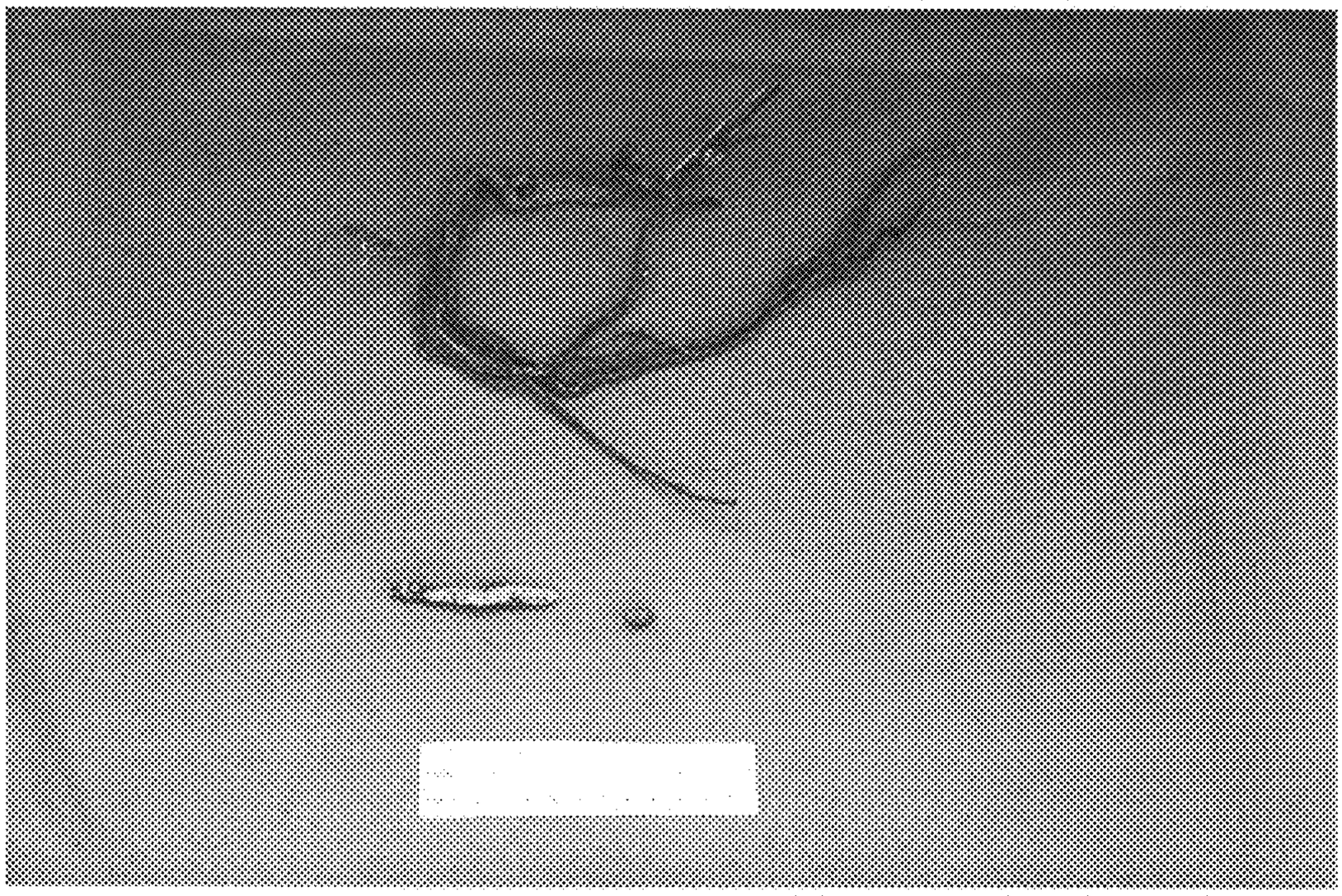

Fig. 4

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : PP29,378 P2
APPLICATION NO. : 15/330763
DATED : June 12, 2018
INVENTOR(S) : Yencho et al.

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

On the Title Page

Item (65) Prior Publication Data: Please insert -- US 20180132403 P1 May 10, 2018 --

In the Specification

Column 4, Line 22: Please correct “planting” to read -- planting. --

Signed and Sealed this
Twentieth Day of November, 2018

Andrei Iancu
Director of the United States Patent and Trademark Office