

(12) **United States Plant Patent**
LaBonte

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(54) **SWEETPOTATO PLANT NAMED ‘LA17-40’**

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(50) **Latin Name:** *Ipomoea batatas* (L.) Lam.
Varietal Denomination: **LA17-40**

(51) **Int. Cl.**
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(52) **U.S. Cl.**
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(58) **Field of Classification Search**
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(57) **ABSTRACT**
A new variety of sweetpotato, identified as ‘LA17-40’, is disclosed having resistance to southern root-knot nematode; an orange flesh and attractive 5 lobed dark green and purple leaves.

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3 Drawing Sheets

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Genus and species name: *Ipomoea batatas* (L.) Lam.
Variety denomination: ‘LA17-40’.

BACKGROUND OF THE INVENTION

Sweetpotatoes, unlike Irish potatoes (*Solanum tuberosum*), are not tuber propagated plants. A “tuber” is a short, thickened portion of an underground branch. Along a tuber “eyes” are found, each of which comprises a ridge bearing a scale-like leaf (analogous to a branch leaf) having minute meristematic buds in the axial of the leaf. By contrast, sweetpotato roots are developmentally and anatomically true roots, lacking meristematic buds, and are not derived from an underground branch. Sweetpotatoes do not form tubers.

SUMMARY OF THE INVENTION

This invention pertains to a new and distinct variety of sweetpotato. This new and distinct sweetpotato variety demonstrates superior resistance to southern root-knot nematode and exhibits an orange flesh storage root with copper skin and has ornamental foliage characteristics. It also demonstrates a dark green and purple foliage and 5 lobed leaf in comparison to ‘05-111’ with an entire leaf.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a color photograph of the fleshy root form of the novel variety of sweetpotato identified as ‘LA17-40’.

FIG. 2 is a color photograph of the fleshy root form of the sweetpotato variety identified as ‘05-111’.

FIG. 3 is a color photograph of the canopy biomass of the novel variety of sweetpotato identified as ‘LA17-40’ with card stating 17-40.

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DETAILED BOTANICAL DESCRIPTION

This new variety of sweetpotato, named ‘LA17-40’, resulted from an open pollinated cross performed in 2016 to the female parent ‘LA15-540W’. ‘LA 15-540W’ is a progeny of ‘12-119W’. The female parent ‘LA 15-540W’ had green, cordate leaves and a highly compact growth habit. ‘LA17-40’ was developed to provide a variety with storage root characteristics similar to ‘05-111’ (U.S. Plant Pat. No. 23,761 P3) but with attractive foliage for ornamental use.

Plants of ‘LA17-40’ and variety ‘05-111’ can be differentiated. Leaves of ‘LA17-40’ are five lobed. ‘05-111’ has an entire leaf with no lobes. Roots of ‘LA17-40’ are a copper skin [5 Y (yellow) R (red) (6/6)] and can be differentiated from the light to medium rose skin of ‘05-111’. Color terminology used herein is in accordance with the MUNSSELL® Book of Color (2003 Edition, Munsell Color, GretagMacbeth LLC, 617 Little Britain Road, New Windsor, N.Y. 12553-6148). The color descriptions and color illustrations are as nearly true as is reasonably possible. However, it is understood that both color and other phenotypic expressions described herein may vary from plant to plant with differences in growth, environment and cultural conditions, without any change in the genotype of the variety ‘LA17-40’.

‘LA17-40’ roots were stored during the winter in Chase, La. ‘LA17-40’ was planted the following spring, resulting in approximately 8-10 sprouts per root. Cuttings from the sprouts were transplanted successfully for asexual reproduction in Chase, La. Asexual propagation of the new cultivar by cuttings has shown that the unique features of this new sweetpotato were stable and that the plant reproduced true to type in successive generations of asexual propagation. Plants described herein were 90 days in age from planting in full sun field plantings.

FIG. 1 depicts the fleshy root form of the 'LA17-40' sweetpotato. The skin is copper and differs from the light to medium rose '05-111', both at harvest and after several months of storage as shown in Table 1. MUNSELL® Book of Color values for skin and flesh for both 'LA17-40' and '05-111' storage roots are shown in Table 1. No eyes or longitudinal grooving are present. The '05-111' sweetpotato is depicted in FIG. 2. The skin for both 'LA17-40' and '05-111' was smooth. The 'LA17-40' cortex was 2.8 mm in depth and the color similar throughout. The flesh of 'LA17-40' is orange with a more red hue but similar in comparison to '05-111'.

TABLE 1

Variable	Variety	Color
Skin	'LA17-40'	[5 Y (yellow) R (red) (6/6)]
	'05-111'	2.5 Y (yellow) R (red) 6/6
Flesh	'LA17-40'	5 Y (yellow) R (red) 6/10
	'05-111'	2.5 Y (yellow) R (red) 7/8

FIG. 3 depicts the canopy biomass of 'LA17-40' sweetpotato with card stating 17-40. 'LA17-40' has round, purple vines [10 P (purple) (2/4)]. The apex is light green [5 G (green) Y (yellow) (4/6)] and quickly changes to medium purple [10 P (purple) (2/4)] and lacks pubescence. The 'LA17-40' canopy biomass appears greater than '05-111'. The 'LA17-40' canopy architecture was 38 cm in height from the soil surface and upright. The spread is greater than '05-111'. For 'LA17-40', five main vines arose from the main stem near the soil surface. The stem giving rise to these vines was 2 cm in diameter; the 5 lateral vines were 122 cm in length with diameters of about 0.6 cm at 65 cm from the base and diameters of about 0.6 cm at the first internode of the first fully developed leaf from the apex. Five lateral branches arose from each of the main vines. At the first internode from the apex, the internode length was about 2 cm between the first and second fully developed leaves. Internode lengths for other sections of the vine averaged about 4.2 cm. Unfolded immature leaves were light green [5 G (green) Y (yellow) (4/6)] for the adaxial and abaxial surface, which change over one node from the apex for the adaxial surface to a purple [10 P (purple) (2/4)] and to a red purple [2.5 R (red) P (purple) (2/4)] abaxial surface. Older leaves 6 nodes from the apex take on a red purple hue [10 R (red) P (purple) (3/4)] and dark green [5 G (green) (4/4)]. Leaves five nodes from the apex had an acute apex and mostly a cordate base and medium to deep 5 lobed lamina. Leaf margins are entire and the adaxial and abaxial surfaces were smooth. Mature leaves were about 9.0 cm long and 10.4 cm wide. Adaxial and abaxial veins were in a pinnate venation pattern and purple [10 P (purple) (3/6)]. The petiole was purple [10 P (purple) (2/4)]. No marking existed at the base of the leaf junction with the petiole. The petiole was 11.0 cm long at five nodes from the apex, and 2 mm in diameter at 5 cm from the leaf junction. The dormant nodal meristem was purple [10 P (purple) (2/4)].

A typical inflorescence of 'LA17-40' displayed two clusters of six flowers per peduncle. Peduncles were green [10 G (green) Y (yellow) (5/8)], about 8-10 cm long, and about 3 mm in diameter. Individual flowers were about 2.75 cm long from the base of the calyx, and the corolla was 2.6 cm wide at the opening. The fused flower petals formed a pentagonal pattern with smooth edges. The inner throat of the corolla was purple [5 P (purple) (2/6)]. The inner and

outer limbs of the corolla (corollas outermost area, distal from the calyx) were light purple [5 P (purple) (2/6)]. The five sepals comprising the calyx were elliptic with a cordate apex and purple [5 P (purple) (8/4)]; three of these sepals were about 12 mm long and 4 mm wide. Two other sepals (interspersed) were about 8 mm long and 2.5 mm wide. Sepal margins were entire. Stigmata were about 1.25 cm long and purple [5 P (purple) (8/4)] at the base before fading. Five stamens were inferior to the stigmata. A slight fragrance was present. Mature seed capsules are round and 6.0-6.3 mm in length and width, and seed are 3.5 mm round. One black [neutral 1.75] seed is produced on average per capsule.

EXAMPLE 1

Tests Conducted

To confirm that 'LA17-40' was a new ornamental variety with storage roots, controlled tests (e.g., pathogen responses and yield) were conducted in Baton Rouge, La. '05-111' was selected for comparison because of its importance in commercial United States orange flesh sweetpotato acreage. Diseases that commonly affect the growth of sweetpotatoes were selected to test for pathogen responses in both varieties. 'LA17-40' was very susceptible and '05-111' was resistant to *Fusarium* wilt or stem rot caused by *Fusarium oxysporum* Schlecht. f. sp. *batatas* (Wollenw.) Snyder & Hans.

Storage roots have a storage life similar to '05-111'. There are no data on shipping or storage root market use.

Nematode reproduction was measured in greenhouse tests. 'LA17-40' was highly resistant while '05-111' was susceptible to race 3 of the southern root-knot nematode, *Meloidogyne incognita* (Kofoid & White 1919) Chitwood 1949.

'LA17-40' is drought and heat tolerant similar to '05-111' and succumbs to death at freezing like '05-111'.

'LA17-40' has not been tested for novel insect resistance.

To determine yield production, complete-block trials using three replications of 'LA17-40' and '05-111' were conducted in 2018 in Louisiana, Arkansas and South Carolina. 'LA17-40' and '05-111' sweetpotato plants were transplanted in randomized complete-block trials at 31 cm spacings. Each block/plot was fertilized with approximately 250 pounds per acre of a mixed fertilizer comprising 13% N, 13% P₂O₅, and 13% K₂O. 'LA17-120' was compared to '05-111' at transplanting dates in June. Average yields were measured for the following grades of roots: U.S. #1 (51-89 mm in diameter, 76-229 mm long); Canner (25-51 mm in diameter, 51-178 mm long); and Jumbo (larger than U.S. #1 in diameter, length or both, and without objectionable defects). A typical marketable root of 'LA17-40' was 180-190 mm long, 60-70 mm in diameter, with mostly round-elliptic in shapes. The base or distal end tended to be more elongated in comparison to slightly rounder apex (proximal end). U.S. #1 roots typically weighed 150-190 g.

A mid-season transplanting date trial was conducted at Gilbert, La. in 2018. 'LA17-40' and '05-111' were transplanted on Jun. 19, 2018 and harvested on Oct. 19, 2018 (123 days after planting). Average yields, measured as Metric Tons per Hectare (MT·ha⁻¹), for 'LA17-40' and '05-111' are shown in Table 2.

TABLE 2

Mid-season transplant date yield trial.				
Selection	US#1 [†]	Canners [†]	Jumbos [†]	TMY ^{‡†}
‘LA17-40’	10.19a	8.80a	0.00a	19.05a
‘05-111’	10.98a	11.23a	0.00a	22.21a

[†]Average yields in MT · ha⁻¹ of varieties followed by a common letter do not differ significantly (P < 0.05) according to Duncan’s Multiple Range Test.
TMY[‡] = total marketable yield

A mid-season transplanting date trial was also conducted at Wynne, Ark. in 2018. ‘LA17-40’ and ‘05-111’ were transplanted on Jun. 5, 2018 and harvested on Oct. 9, 2018 (127 days after planting). Average yields, measured as Metric Tons per Hectare (MT·ha⁻¹), for ‘LA17-40’ and ‘05-111’ are shown in Table 3.

TABLE 3

Mid-season transplant date yield trial.				
Selection	US#1 [†]	Canners [†]	Jumbos [†]	TMY ^{‡†}
‘LA17-40’	7.0a	13.11a	0a	20.06a
‘05-111’	16.5a	11.04a	8.74a	36.25a

[†]Average yields in MT · ha⁻¹ of varieties followed by a common letter do not differ significantly (P < 0.05) according to Duncan’s Multiple Range Test.
TMY[‡] = total marketable yield

A mid-season transplanting date trial was also conducted at Windsor, S.C. in 2018. ‘LA17-40’ and ‘05-111’ were transplanted on Jun. 14, 2018 and harvested on Oct. 22, 2018 (131 days after planting). Average yields, measured as

Metric Tons per Hectare (MT·ha⁻¹), for ‘LA17-40’ and ‘05-111’ are shown in Table 4.

TABLE 4

Mid-season transplant date yield trial.				
Selection	US#1 [†]	Canners [†]	Jumbos [†]	TMY ^{‡†}
‘LA17-40’	10.87a	8.57a	1.57a	20.96a
‘05-111’	12.44a	13.67a	0.77a	26.89a

[†]Average yields in MT · ha⁻¹ of varieties followed by a common letter do not differ significantly (P < 0.05) according to Duncan’s Multiple Range Test.
TMY[‡] = total marketable yield

As shown in Tables 2-4, ‘LA17-40’ produced lower yield in comparison to ‘05-111’ in regional trials at various planting dates. ‘LA17-40’ had harvestable roots approximately 120-130 days after planting, which is typical development time for sweetpotatoes and comparable to ‘05-111’. ‘LA17-40’ is not intended for commercial production but intended for the ornamental industry thus yield is satisfactory.

‘LA17-40’ should be a valuable commercial ornamental sweetpotato variety. ‘LA17-40’ has lower yield in comparison to ‘05-111’ and represents a unique canopy type which produces edible roots.

What is claimed is:

1. A new and distinct variety of *Ipomoea batatas* plant named ‘LA17-40’ as described and illustrated in the specification herein.

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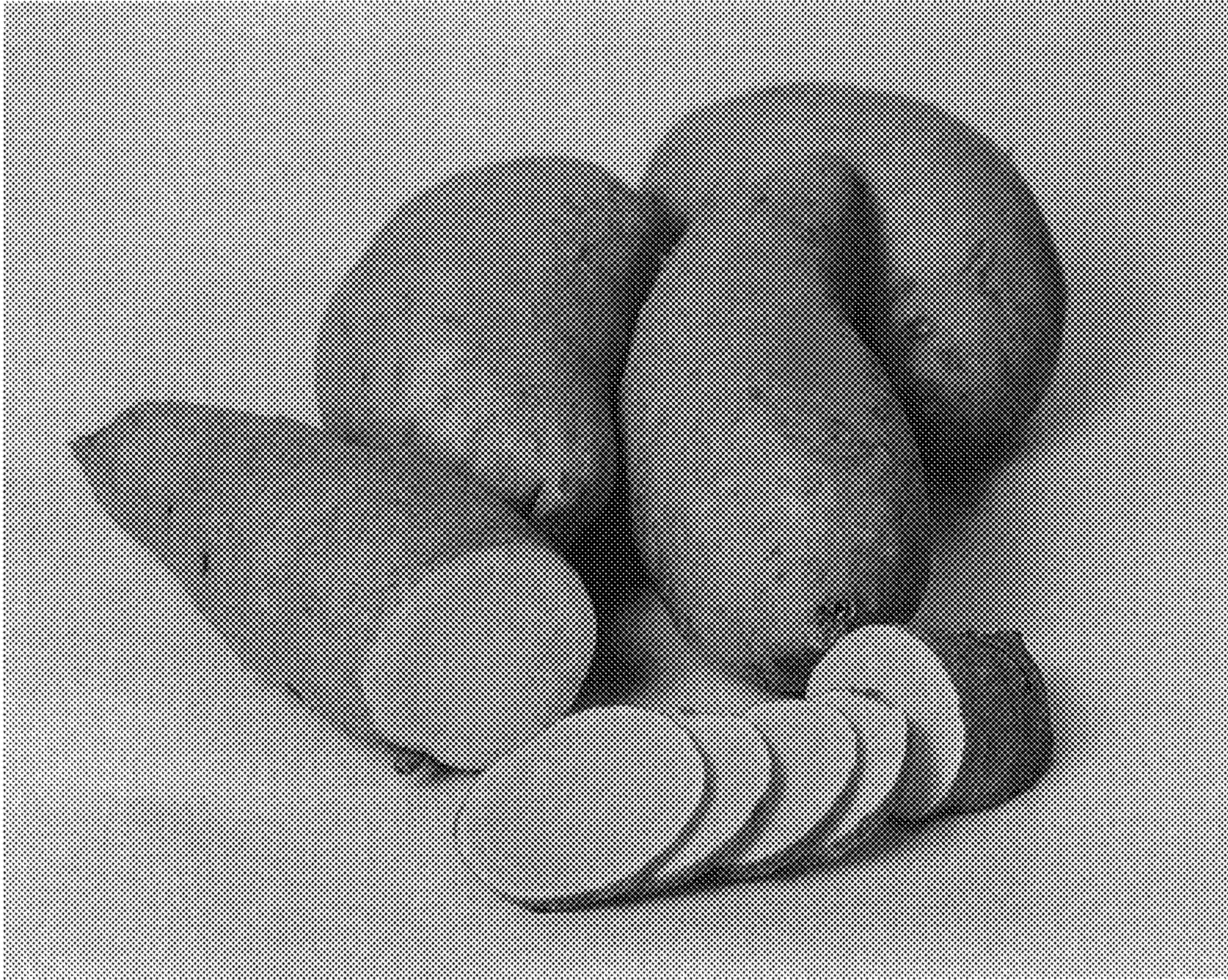


FIG. 1

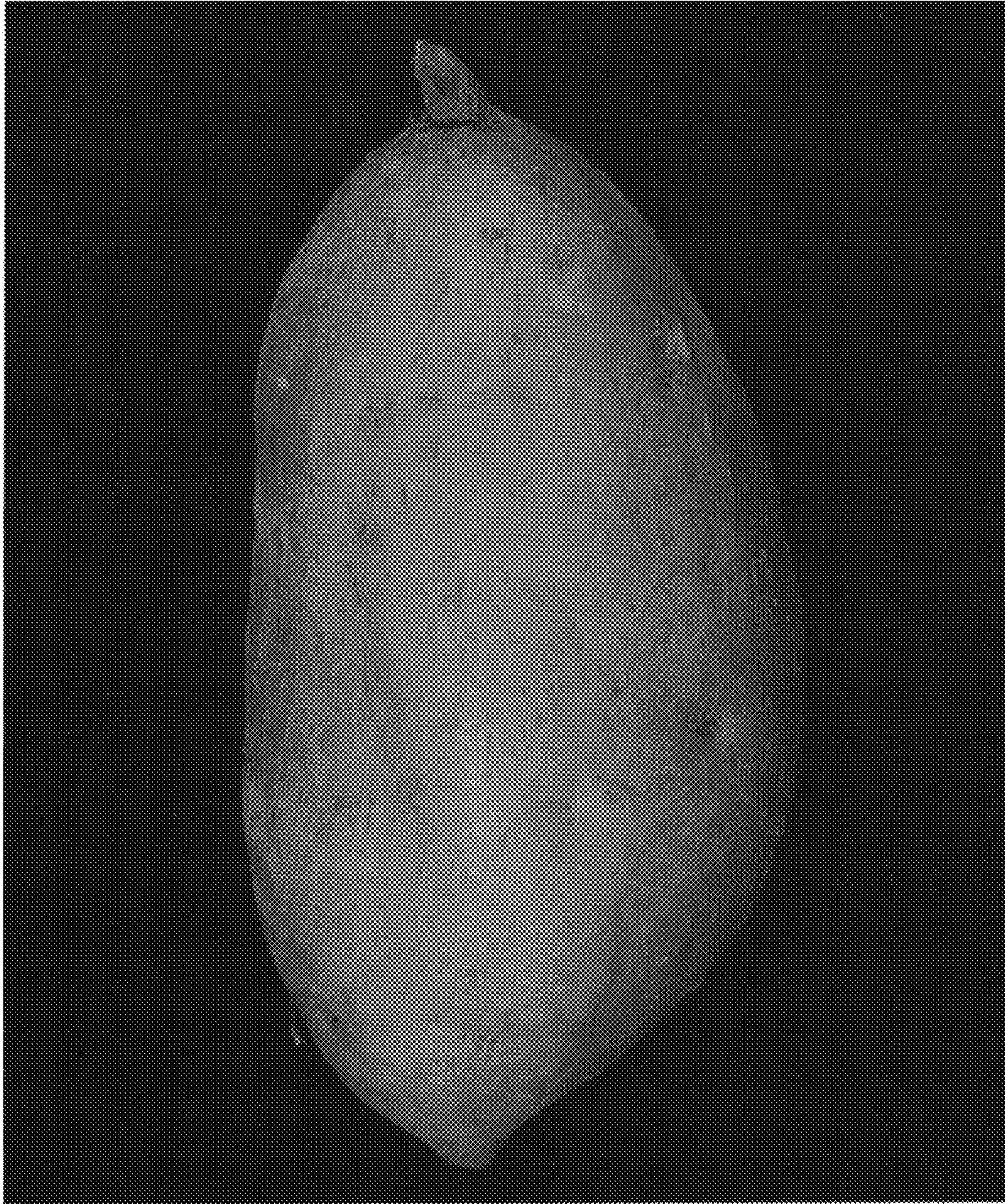


FIG. 2



FIG. 3