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Lowe et al.

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[54] KIWI PLANT NAMED ‘TOMUA’
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[52] U.S. Cl. Plt./156
[58] Field of Search Plt./33.1, 156

[56] References Cited
PUBLICATIONS
UPOV CD-ROM Kiwi plant named ‘Tomua’, PBR
KIW009, New Zealand, May 1995.

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[57] ABSTRACT
A new and distinct kiwi plant of the species *Actinidia
deliciosa* (A.Chev.) C.F. Liang et A.R. Ferguson is
described. The cultivar results from a controlled pollination
of *A. deliciosa* DA02_03, a male selection of unknown
parentage, and the female *A. deliciosa* ‘Hayward’, the most
widely grown cultivar of kiwi worldwide. Both named
parents (DA02_03 and ‘Hayward’) are unpatented culti-
vars. The new cultivar is distinguished by its early harvest
time (about 4 weeks ahead of ‘Hayward’ in NZ), fruit
appearance similar to ‘Hayward’, and moderate plant vigor.

5 Drawing Sheets

BACKGROUND TO THE INVENTION

Kiwi plants in cultivation are deciduous vines of *A.
deliciosa*. There are more than 60 species in the genus
Actinidia originating in China and parts of Asia. The kiwi
cultivar ‘Hayward’, developed in New Zealand, is the most
widely grown cultivar because of its distinctive green flesh,
good flavor and long storage life. Plants are dioecious, so
male pollinizers are required as well as female plants to
ensure fruit production.
Kiwi plants grow vigorously in spring, and rapidly
develop a canopy of canes up to 6 m long if not managed
correctly. Plants require a mild, warm-temperate climate,
free from late spring and early autumn frosts, and need
well-drained soils to produce consistent, heavy crops of
fruit. Regular irrigation is necessary in dry spells. Flowering
occurs in late spring (mid-late November in New Zealand).
The distinctive, green-fleshed fruit develop rapidly after
pollination and reach 90% of their harvest weight after 3
months. Fruit from the cultivar ‘Tomua’ is harvested in early
April in New Zealand, while ‘Hayward’ is normally har-
vested during May.

SUMMARY OF THE INVENTION

The present invention relates to a new and distinctive kiwi
plant having an ovoid shaped fruit. More particularly, the
new cultivar is designated ‘Tomua’, and is derived from a
controlled pollination of *A. deliciosa* DA02_03, an unpat-
ented male selection of unknown parentage, and ‘Hayward’,
also unpatented. The male parent, which originated from
seeds introduced from China in 1975, was selected as the
pollen parent for the crosses because of its very early-
flowering characteristics. The seed parent ‘Hayward’ was
selected for its large size, good flavor and good storage life.
The new cultivar of kiwi was created in the course of a
plant breeding program which was initiated in 1983 at Hort
Research in Te Puke, New Zealand. An early-flowering
unpatented *A. deliciosa* male, DA02_03, was crossed on to
the unpatented seed parent ‘Hayward’ by Russell Lowe in
November 1983. 59 seedlings from this cross were planted
out in the field in April 1986. By December 1990 most plants

had flowered and ‘Tomua’ was selected by Russell Lowe and
Hinga Marsh from 19 female seedlings in this population.
‘Tomua’ fruit matured 4 weeks ahead of ‘Hayward’ and had
acceptable fruit size, a good flavor and appeared to have
commercial potential.
The new cultivar can be asexually reproduced as cuttings
or by grafting or budding on to seedling or cutting-grown
rootstocks of *A. deliciosa*. Trial plantings, established in
1989 at Te Puke, with plants grafted on to clonal ‘Hayward’
rootstocks, have shown that the unique combination of
characteristics come true to form and are established and
transmitted through succeeding asexual propagations.
‘Tomua’ flowers two weeks ahead of ‘Hayward’, so the
usual pollinizers used for ‘Hayward’ are ineffective. Two
new and unpatented early-flowering pollinizers designated
Hortkiwi ‘Ranger’ and Hortkiwi ‘King’ have been selected
as males for use in new plantings of ‘Tomua’.

BRIEF DESCRIPTION OF THE
ILLUSTRATIONS

FIG. 1 shows typical fruit on the vine of the cultivar
‘Tomua’.
FIG. 2 shows typical fruit on the cultivar ‘Tomua’. Note
pointed stylar end.
FIG. 3 shows ‘Tomua’ fruit in cross-section and profile.
FIG. 4 shows ‘Hayward’ fruit in cross-section and profile.
FIG. 5 shows ‘Tomua’ fruit in close up. Note overall
similarity to ‘Hayward’
FIG. 6 shows ‘Hayward’ fruit in close up.
FIG. 7 shows flowers of the cultivar ‘Tomua’ on the vine.
Note petals cupped around the ovary.
FIG. 8 shows flowers of the cultivar ‘Hayward’ on the
vine. Note petals in horizontal alignment.
FIG. 9 shows mature leaves of the ‘Tomua’ vine.
FIG. 10 shows mature leaves of the ‘Hayward’ vine.
Photographs of fruit on the vine were taken just prior to
the harvest date. Colors may vary depending upon growing
conditions under different climate, soil, and cultivation

conditions and the fruit skin color may vary depending upon extent of exposure to direct sunlight.

The fruit of ‘Tomua’ are ovoid in shape, tapering towards the stylar end, generally circular in cross-section although slightly flattened (FIG. 3). The flesh of ‘Tomua’ fruit is medium green like ‘Hayward’ with a columella similar to ‘Hayward’ (FIG. 4). The hairs on the skin of the fruit of ‘Tomua’ are slightly stiffer than those of ‘Hayward’ and slightly prickly to the touch, but are very easily removed by rubbing or brushing to reveal a rather shiny skin (FIG. 2). The skin color of ‘Tomua’ fruit is a reddish-brown in contrast to that of ‘Hayward’ which is a medium brown color. ‘Tomua’ fruit are slightly longer than those of ‘Hayward’ for an equivalent weight. The length to (maximum) width ratio for Tomua fruit is 7:5 while that of Hayward fruit is 6:5. ‘Tomua’ fruit have a higher dry matter content at harvest and are sweeter tasting than ‘Hayward’ fruit when ripe. The storage life of ‘Tomua’ fruit when held at 0° C. is about 12 weeks while that of ‘Hayward’ is up to 25 weeks under ideal conditions.

BOTANICAL DESCRIPTION OF THE PLANT

The new cultivar ‘Tomua’ is pistillate with imperfect flowers, i.e., only sterile pollen is produced and thus flowers require a pollinizer for fruit production. Two specific pol-
linizers have been developed for ‘Tomua’ and they are named Hortkiwi ‘Ranger’ and Hortkiwi ‘King’. Character-
istics of the new cultivar by which it differs from the common ‘Hayward’ cultivar include earlier flowering and
harvest times, longer fruit shape, more easily removed hairs on the skin, more pointed shape at the stylar end (FIG. 2) and
reddish-brown colored skin. Horticultural terminology is used in accordance with revised UPOV guidelines for kiwi.

TABLE OF CHARACTERISITCS		
Characters of the ‘Hayward’ comparison cultivar are noted in [bracket] opposite that character only when significantly different.		
All dimensions in millimeters, weights in grams.		
	Tomua	Hayward
PLANT		
Plant: sex expression	female	
Plant: ploidy	hexaploid (2n = 6x = 174)	
Plant: vigor	medium	
Young shoot: hairs	present	
Young shoot: density of hairs	medium	
Young shoot: type of hairs	velutinous	
Young shoot: anthocyanin coloration of growing tip	medium	
young shoot: anthocyanin coloration of leaf axil	weak	
STEM		
Stem: diameter	medium - Mean 10.8 mm (Range 10.2–12.3)	
Stem: dormant bud diameter	2.55 mm (1.7–3.1)	
Stem: color on upper side of shoot	red-brown	
Stem: hairs	present	
Stem: conspicuousness of lenticels	conspicuous	
Stem: number of lenticels	medium	
Stem: color of lenticels	brownish-white	
Stem: size of bud support	medium	

-continued

TABLE OF CHARACTERISITCS		
Characters of the ‘Hayward’ comparison cultivar are noted in [bracket] opposite that character only when significantly different.		
All dimensions in millimeters, weights in grams.		
	Tomua	Hayward
Stem: visibility of bud (dormant canes)	inconspicuous	
Stem: number of hairs visible on bud (dormant canes)	few	
Stem: leaf scar	medium	
LEAF		
Leaf: general shape of blade	round	[very broadly ovate]
Leaf: length	140 mm (120–160 mm)	
Leaf: width	149 mm (100–170 mm)	
Leaf: shape of tip of blade	mucronate	
Leaf: shape of base of blade	cordate	
Leaf: arrangement of leaf bases	overlapping	
Leaf: puckering/blistering on upper side of blade	medium	
Leaf: margin	ciliate	
Leaf: green color of upper side of blade	medium	
Leaf: glossiness of upper surface of blade	medium	
Leaf: color of lower side of blade	light green	
Leaf: glaucousness (lower side of blade)	absent	
Leaf: petiole length	87 mm (52–150 mm)	
Leaf: hears on petiole	present	
Leaf: density of hairs on petiole	medium	
Leaf: anthocyanin coloration on upper side of petiole	weak	[medium]
FLOWER (Measurements taken from a sample of 20 flowers)		
Inflorescence: predom- inant number of flowers	one	
Pedicel: length	medium - 36.9 mm (31.0–43.0 mm)	
Pedicel: hairs	present	
Pedicel: length of hairs	medium	
Flower: number of sepals	>5	
Flower: color of sepals	brown	
Flower: diameter (terminal or king flower when fully open)	large - 63.3 mm (47.8–70.6 mm)	
Flower: petal length	30.0 mm (25.3–34.3 mm)	
Flower: petal width	22.7 mm (18.5–29.6 mm)	
Flower: petal length/ width ratio	1.33 mm (1.11–1.48 mm)	
Flower: mean number of petals per flower	7 (6–8)	
Flower: number of flowers with more than six petals	15 out of 20 flowers	
Flower: arrangement of petals	overlapping	
Flower: petal shoulder	present	
Flower: primary color of petals on upper side (when fully open)	white	
Flower: type of coloration	uniform color,	

TABLE 1-continued

<u>Flesh Color at maturity:</u>		
Outer pericarp	138B–138D	[Hayward 138B–138C]
Tomua		
<u>Fruit core:</u>		
Tomua	155–155B	[Hayward 155A]
Seed color (in fruit):	200A	
Seed color (dry seed):	165A–165B	
<u>Fruit skin at maturity:</u>		
Tomua	165B	[Hayward 164B]
<u>Leaf color: mature leaf after petal fall</u>		
Upper side of leaf	137A or	
Tomua	147A	
Lower side of leaf	147B–147C	

TABLE 1-continued

<u>Tomua</u>	
<u>Petiole color:</u>	
exposed side	178B
<u>Flower petals:</u>	
main body	155D
base	154C–154D
<u>Plant Stem:</u>	
exposed side:	165A
Lenticel color:	164B–164C.

We claim:

1. A new and distinct kiwi plant of the species *A. deliciosa* substantially as described and illustrated in the specification above, characterised by early harvest date compared to ‘Hayward’, medium green flesh, reddish-brown skin, easily removable hairs, and a slight pointed stylar end.

* * * * *



FIG. 1

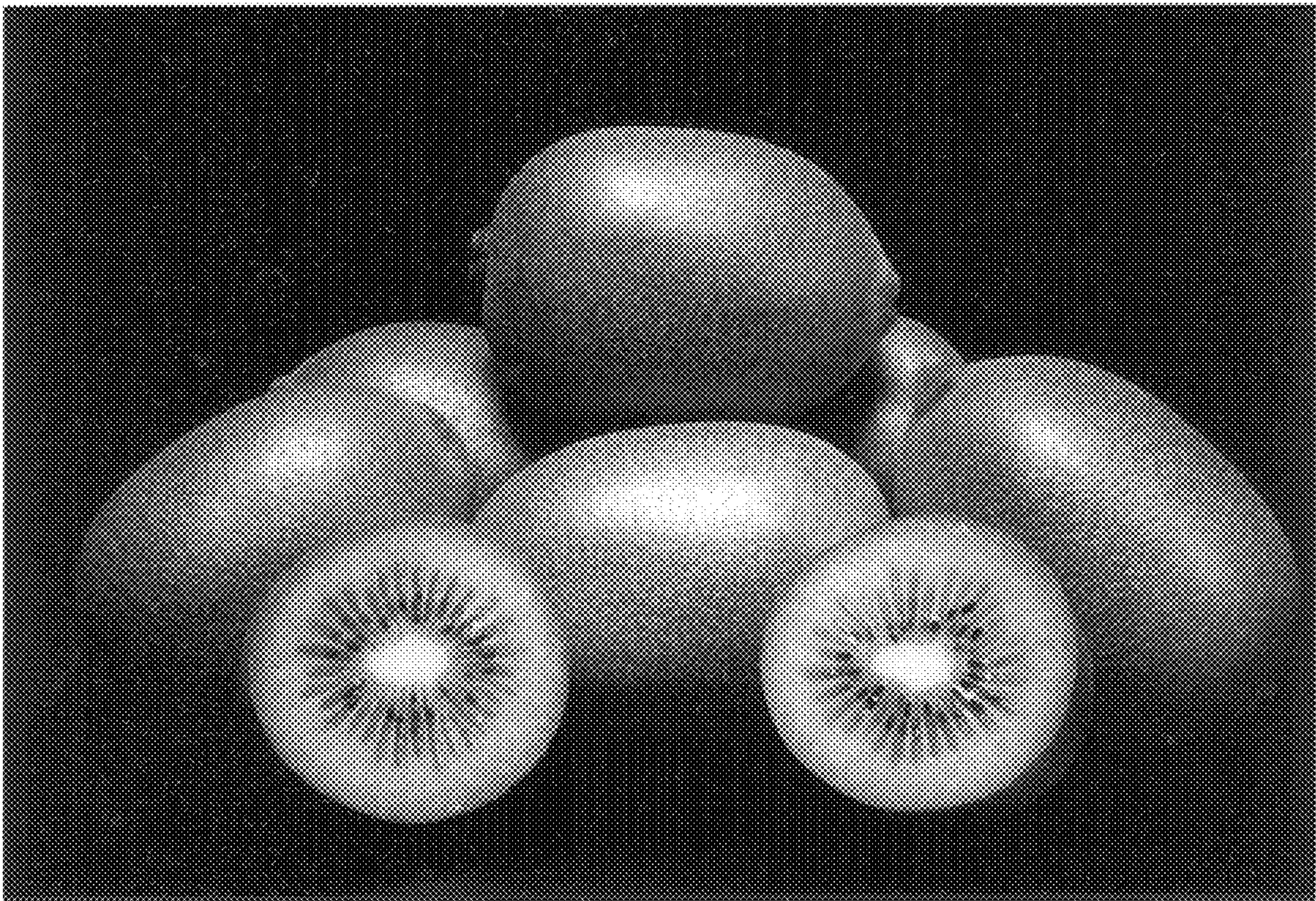


FIG. 2

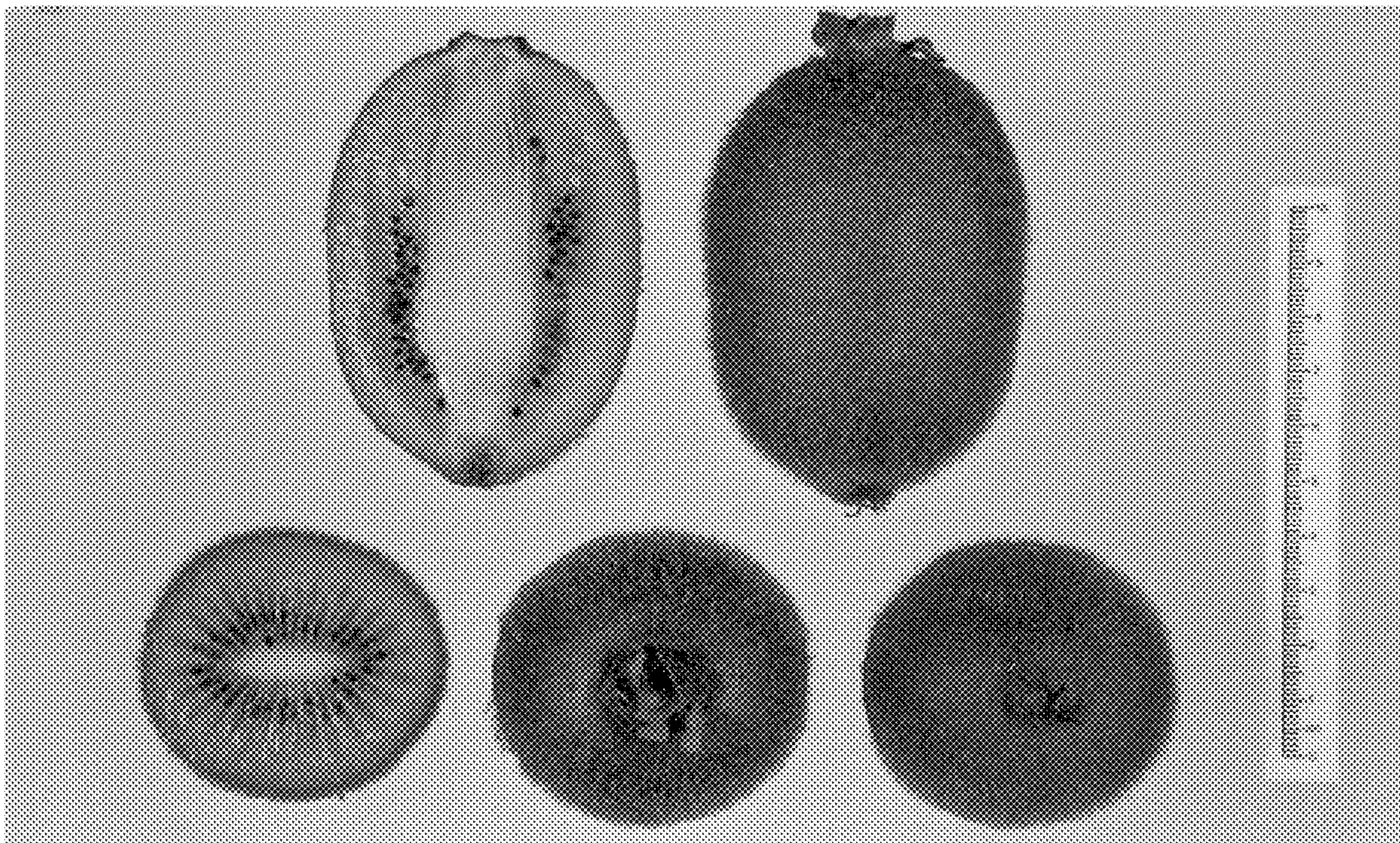


FIG. 3

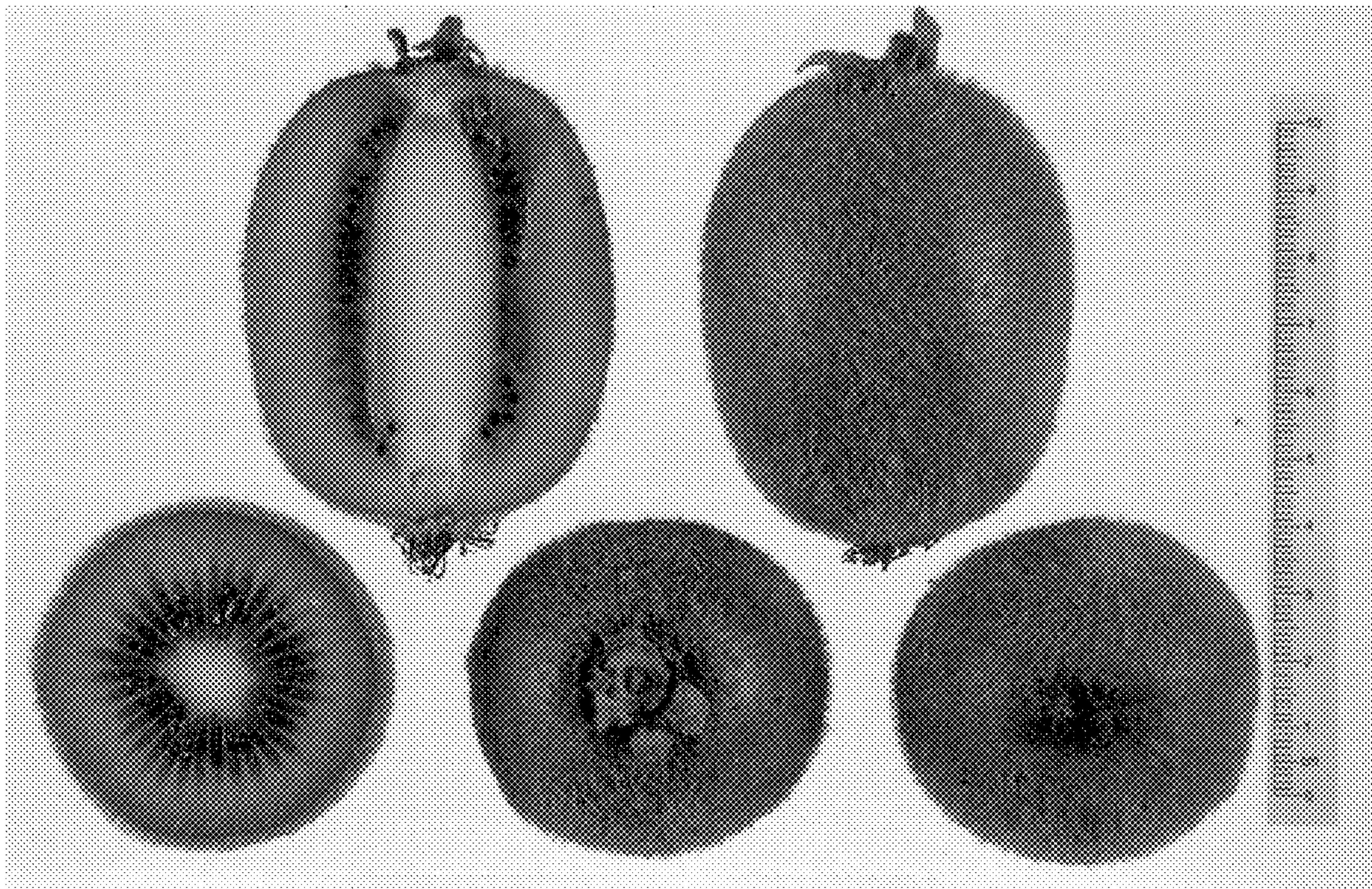


FIG. 4

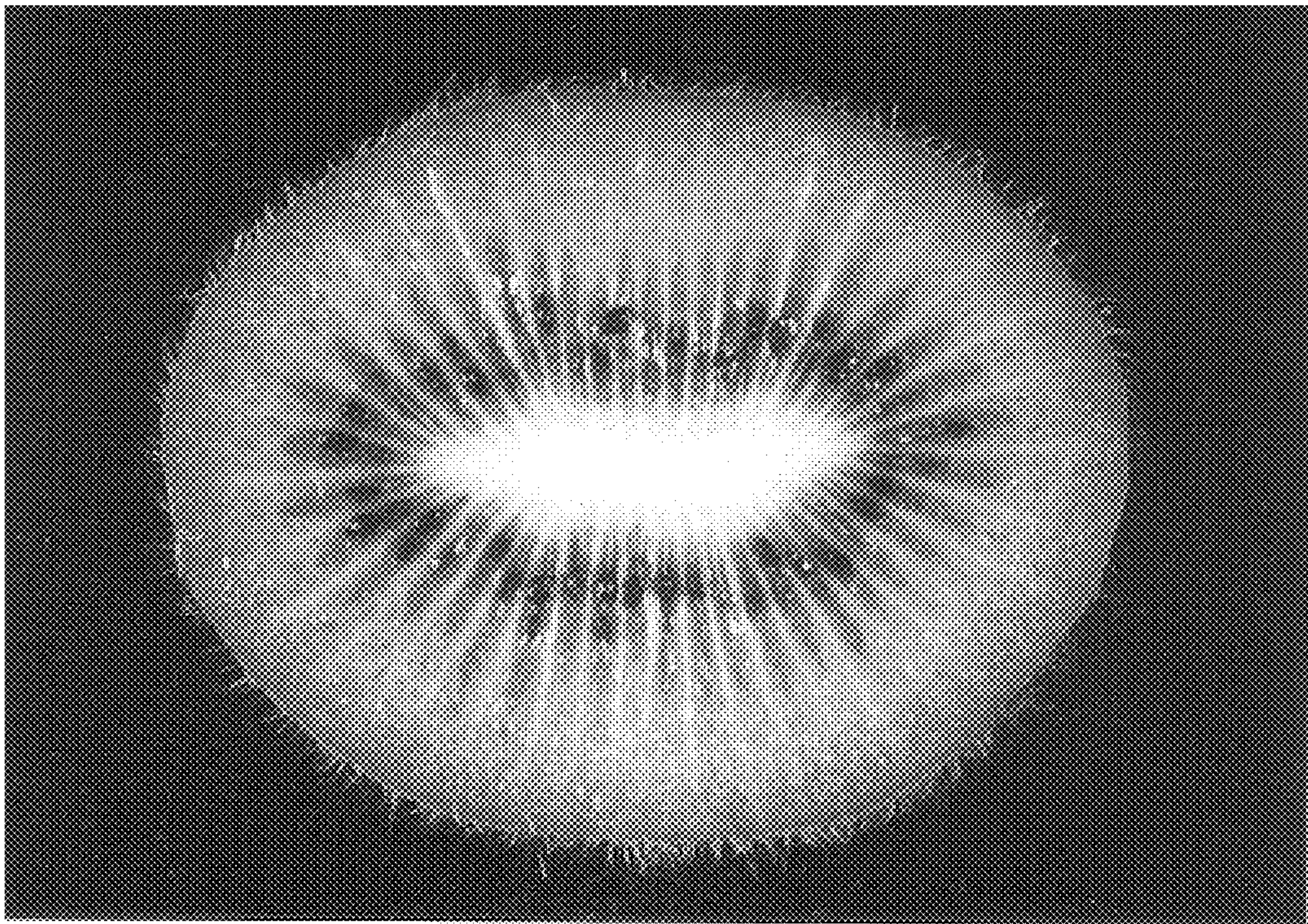


FIG. 5

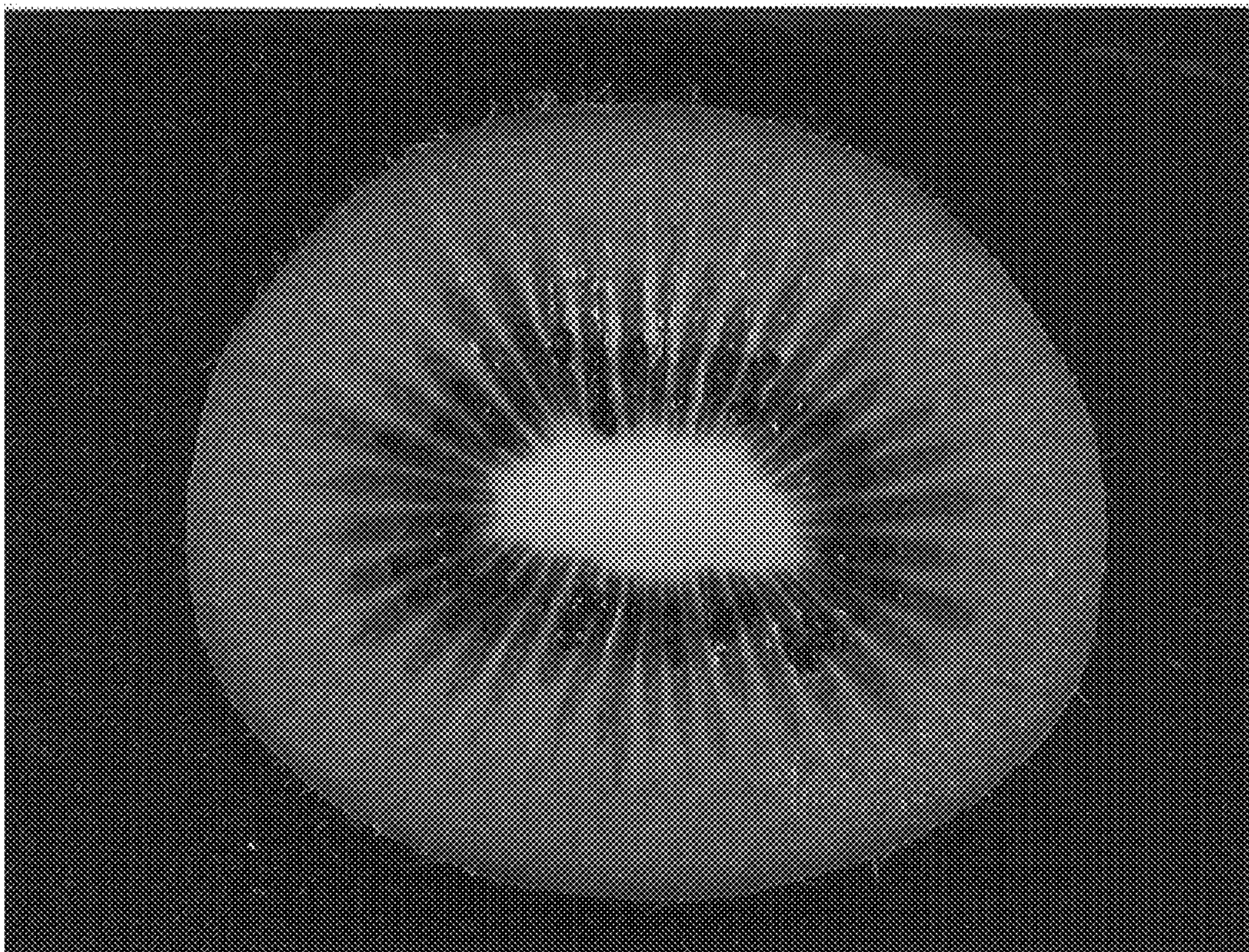


FIG. 6



FIG. 7



FIG. 8

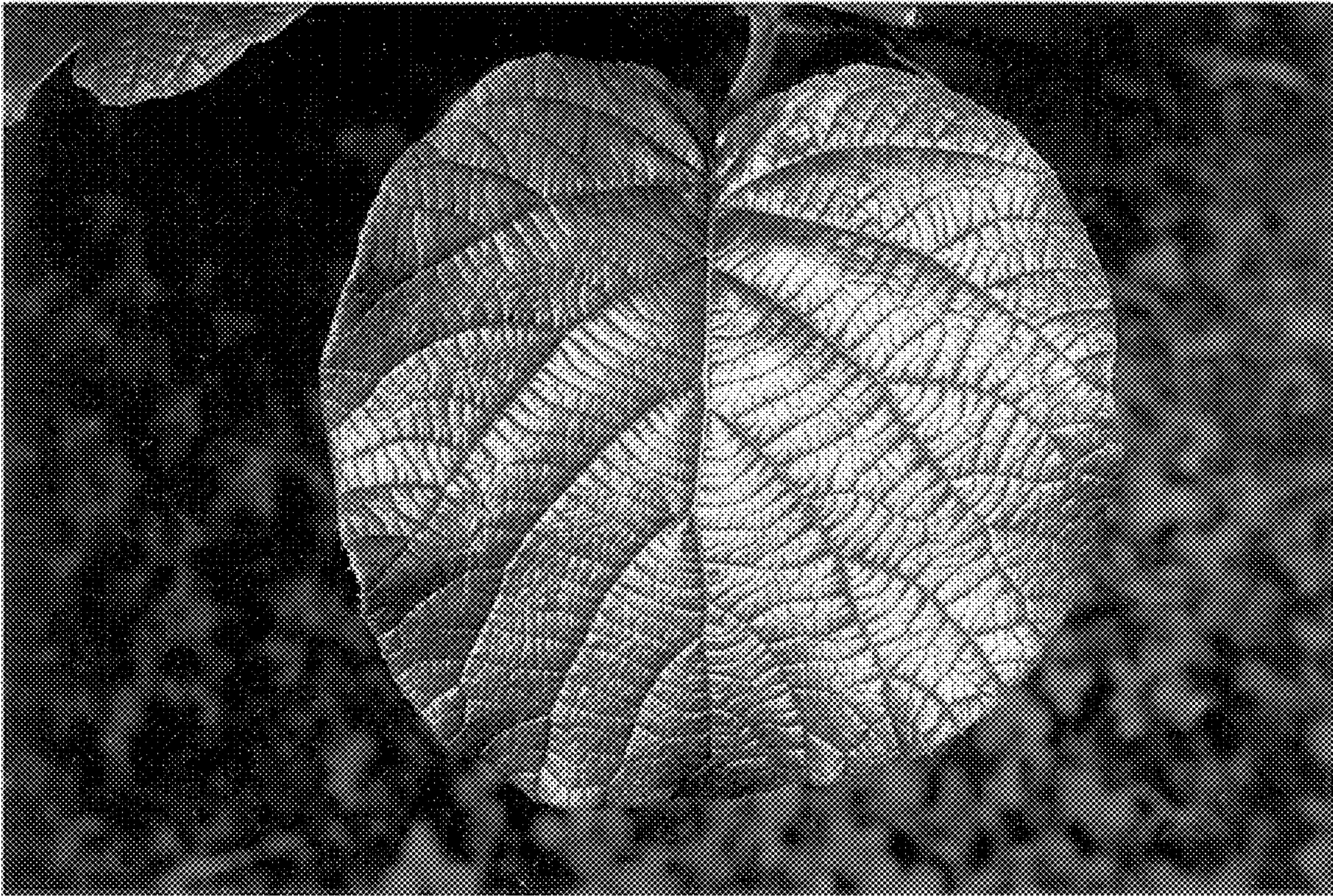


FIG. 9



FIG. 10