

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

(10) **Patent No.:** **US PP29,300 P3**

(45) **Date of Patent:** **May 22, 2018**

(54) **CITRUS RETICULATA** BLANCO PLANT
NAMED ‘TAMDO NO.3’

(50) Latin Name: *Citrus reticulata* Blanco
Varietal Denomination: **Tamdo No.3**

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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. days.

(21) Appl. No.: **14/998,683**

(22) Filed: **Feb. 2, 2016**

(65) **Prior Publication Data**
US 2017/0223884 P1 Aug. 3, 2017

(51) **Int. Cl.**
A01H 5/08 (2018.01)

(52) **U.S. Cl.**
USPC **Plt./202**

(58) **Field of Classification Search**
USPC Plt./202
See application file for complete search history.

(56) **References Cited**

PUBLICATIONS

Korea Seed & Variety Service Applications, Appl. No. 2013-353,
Aug. 15, 2013.

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(57) **ABSTRACT**
A new and distinct *Citrus Reticulate* Blanco plant named
‘Tamdo No. 3’, characterized by its upright plant type and
strong vigor, The plant type of ‘Tamdo No.3’ is upright and
the tree vigor is strong, fruit shape is oblate and the fruit
shape index is about 143, fruit skin thickness is about 2.7
mm so it is easy skinning, the fruit flesh rate is about 82.9%,
sugar of fruit juice is about 13.7° Bx, the acidity is about
0.79%, and the sugar acid ratio is about 17.34.

2 Drawing Sheets

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Latin name of the genus and species of the plant claimed:
Citrus reticulata Blanco.
Variety denomination: ‘Tamdo No.3’.

BACKGROUND OF THE INVENTION

The new and distinct cultivar is a product of a breeding
program conducted in a nursery in Korea and by the inven-
tors by crossing a Japanese variety ‘Kiyomi’ (not patented,
as the seed parent) and an American variety ‘Sunburst’
mandarin (not patented, as the pollen parent). The seeds
obtained by the cross were sowed in the next spring. The
plants started fruiting in 2010. In 2011, the first screening
was carried out, and the one called Jegamna-27 was
selected. In the last screening which was carried out in 2012,
Jegamna-27 was selected as a new variety and named
‘Tamdo No.3’.

After hybridization of the parents, the variety was planted
by asexual propagation by grafting in Korea for three
generations and there was no genetic variation, therefore its
traits are stable.

The fruit characteristics of ‘Tamdo No.3’ are in the Table
1 below. The test carried out from 2010 to 2012, in *Citrus*
Research Station.

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Survey date (yyyy.mm.dd)	Fruit weight (g)	Flesh rate (%)	Fruit shape index	Thickness of the skin (mm)
2010.1.6	254.2	85.9	155	1.7
2010.3.22	173.9	77.9		3.0
2011.1.5	189.8	85.1	157	1.5
2011.1.20	213.8	82.3	155	2.1
2011.2.7	200.8	81.9	149	2.7
2011.2.21	171.6	82.7	152	2.3
2011.3.8	232.6	78.5	152	2.8
2011.3.29	262.2	81.4	158	2.4
2012.2.6	290.8	84.6	149	2.3
2012.2.20	280.0	82.9	143	2.7
2012.3.13	284.6	82.6	141	2.2

Survey date (yyyy.mm.dd)	Seed grain number	Sugar (° Bx)	Acidity (%)	Sugar acid ratio
2010.1.6	0.0	10.8	0.82	13.19
2010.3.22	2.4	11.8	1.22	9.66
2011.1.5	0.6	12.9	1.28	10.13
2011.1.20	0.0	12.7	1.28	10.46
2011.2.7	0.0	14.0	1.09	13.02
2011.2.21	0.0	14.4	1.31	11.20
2011.3.8	0.0	14.7	1.06	13.85
2011.3.29	0.0	13.5	0.85	16.05

-continued

2012.2.6	0.0	12.9	0.88	14.69
2012.2.20	0.0	13.7	0.79	17.34
2012.3.13	0.0	13.8	0.82	16.77

Fruit shape index = The transverse diameter ÷ The longitudinal diameter × 100

SUMMARY OF THE INVENTION

The cultivar ‘Tamdo No. 3’ has not been observed under every possible environmental conditions. Therefore, there may be variations in the phenotype due to varying environmental conditions such as temperature, day length and light intensity. However, the genotype will not vary.

The following traits have been repeatedly observed and are determined to be the characteristics of the new cultivar of *Citrus reticulata* Blanco. These attributes in combination distinguish ‘Tamdo No. 3’ as unique from all other varieties of *Citrus reticulata* Blanco known to the inventors.

1. The plant type of ‘Tamdo No.3’ is upright and the tree vigor is strong.
2. The fruit color is orange.
3. Germination stage of ‘Tamdo No.3’ is in the middle of April, and the blooming stage is in late May.
4. Fruits start coloring in late October and finish coloring in early December.
5. The mature stage is in the middle of February.
6. Fruit shape is oblate and the fruit shape index is about 143.
7. Fruit skin thickness is about 2.7 mm so it is easy skinning.
8. The fruit flesh rate is about 82.9%.
9. Sugar of fruit juice is about 13.7° Bx, the acidity is about 0.79%, and the sugar acid ratio is about 17.34.

Plants of the new cultivar ‘Tamdo No. 3’ are similar to plants of the seed parent ‘Kiyomi’ in most horticultural characteristics, however, the plants of the new cultivar ‘Tamdo No. 3’ produce tree vigor that are stronger than the parent. Compared to the parent, ‘Tamdo No. 3’ produces fruit with skin thickness of about 2.7 mm. The fruit surface of the new cultivar is smooth, whereas the ‘Kiyomi’ cultivar has a rough fruit surface.

The new cultivar differs from the closest comparable plants and characteristics of the new cultivar as shown in the tables below:

TABLE 2

Denomi- nation	Characteristic	The expression of the characteristic	
of similar variety	in which the similar variety is different	Kiyomi Variety	Tamdo No. 3 Variety
Kiyomi	plant: type	medium	upright
	Tree vigor	medium	strong
	Fruit: shape index	119 (round)	143 (oblate)
	Fruit: flesh rate	74.6%	82.9%
	Fruit: skin thickness	4.9 mm	2.7 mm
	Fruit: skin surface	rough	smooth
	Fruit juice: Sugar (° Bx)	9.7	13.7
	Fruit juice: Acidity (%)	1.17	0.79
	Fruit: sugar acid ratio	8.29	17.34
	Fruit: color	yellowish orange	medium orange

TABLE 2-continued

Denomi- nation	Characteristic	The expression of the characteristic	
of similar variety	in which the similar variety is different	Kiyomi Variety	Tamdo No. 3 Variety
	Mature stage	early (in the middle of March)	very early (in the middle of February)

TABLE 3

Variety	Fruit weight (g)	Flesh rate (%)	Fruit shape index	Thickness of the skin (mm)	Seed grain number
Tamdo No.3	213.8	82.3	155	2.1	0.0
Kiyomi T-Test (0.05)	214.0 NS	74.4 *	107 *	4.1 *	0.0
Tamdo No.3	232.6	78.5	152	2.8	0.0
Kiyomi T-Test (0.05)	209.9 NS	70.5 *	118 *	4.8 *	0.0
Tamdo No.3	280.0	82.9	143	2.7	0.0
Kiyomi T-Test (0.05)	318.7 NS	74.6 *	119 *	4.9 *	0.0

Variety	Sugar (° Bx)	Acidity (%)	Sugar acid ratio	Degree of color (a*)	Survey date (yyyy.mm.dd)
Tamdo No.3	12.7	1.28	10.46	30.8	2011.1.20
Kiyomi T-Test (0.05)	10.1 *	1.75 NS	5.99 *	18.7 *	2011.1.20
Tamdo No.3	14.7	1.06	13.85	33.6	2011.3.8
Kiyomi T-Test (0.05)	10.3 *	1.55 *	6.68 *	22.6 *	2011.3.9
Tamdo No.3	13.7	0.79	17.34	31.1	2012.2.20
Kiyomi T-Test (0.05)	9.7 *	1.17 *	8.29 *	18.7 *	2012.2.20

TABLE 4

Charac- NO teristics	1	Forms of Expression			
		2	3	4	5
1 Chromo- some multiple		2	3	4	
2 Plant: Type	upright				medium
3 Plant: density of spines	no or sparse				medium
4 leaf: color	light green				green
5 leaf: length	very short		short		medium
6 leaf: width	very narrow		narrow		medium

TABLE 4-continued

7	leaf: length/width ratio	small				medium	
8	Leaf petiole: length	very short		short		medium	5
9	Flower: calyx diameter	small				medium	
10	Flower: petal length	very short		short		medium	
11	Flower: petal width	very narrow		narrow		medium	10
12	Flower: petal length/width ratio	small				medium	
13	Flower: stamen length	very short		short		medium	
14	Flower: anther color	white				light yellow	
15	Flower: activity pollen	absent					
16	Fruit: length	very short		short		medium	20
17	Fruit: width	very narrow		nanow		medium	
18	Fruit: length/width ratio	small				medium	
19	Fruit: neck	absent					
20	Fruit: areola	absent					
21	Fruit: surface color	green	yellowish green	light yellow	medium yellow	yellowish orange (26B)	
22	Fruit: surface roughness	smooth					30
23	Fruit: fresh color	with white	light green	light yellow	medium yellow	light orange (24A)	
24	Fruit: skin thickness	thin				medium	35
25	Fruit: skin strength	weak				medium	
26	Fruit juice: total soluble solids	low				medium	
27	Fruit juice: acid	low				medium	40
28	Mature stage	very early		early		medium	
29	Partheno-carpy	absent					
30	Self-incompat-ibility	absent					
31	Tree vigor	weak				medium	

Forms of Expression					Application variety: Tamdo No. 3		Similar variety: Kiyomi	
NO	6	7	8	9	No	Data	No	Data
1					2		2	
2				pen- dulous	1		5	
3				densely	1		1	
4				dark green (137A)	9		9	
5		long		very long	5	10.3 cm	7	12.7 cm
6		broad		very broad	5	4.8 cm	7	5.8 cm
7				large	5	2.2	5	2.2

TABLE 4-continued

8	long			very long	3	14.9 mm	5	21.7 mm
9				large	5		5	
10	long			very long	5	18.2 mm	5	16.1 mm
11	broad			very broad	5	8.9 mm	5	7.7 mm
12				large	5	2.0	5	2.1
13	long			very long	5		5	
14				medium yellow	1		1	
15				present	1		1	
16	long			very long	5	59.7 mm	7	73.5 mm
17	large			very large	7	89.4 mm	7	84.3 mm
18				large	5	0.67	9	0.87
19				present	9		1	
20				present	1		1	
21	medium orange (30D)	dark orange	red with orange	red	6	31.8(a)	5	20.0(a)
22				rough	1		9	
23	medium orange (25A)	dark orang	red	purple	6		4	
24				thick	5	2.7 mm	9	4.9 mm
25				strong	5		9	
26				high	9	13.7° Bx	5	9.7° Bx
27				high	1		5	
28	late			very late	1		3	
29				present	9		9	
30				present	9		9	
31				strong	9		5	

Table 5 illustrates the comparison of the claimed plant with that of the pollen parent ‘Sunburst’ and a related know variety ‘Kanpei’.

TABLE 5

Characteristic(s) in which the candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the candidate variety ‘Tamdo No. 3’	Describe the expression of the characteristic(s) for the similar variety ‘Sunburst’	Describe the expression of the characteristic(s) for the similar variety ‘kanpei’
45			
50	Plant: Type	upright	spreading
	Flower: activity pollen	absent	absent
	Fruit: width	89.4 mm	66.5 mm
	Fruit: neck	present	absent
	Fruit: presence of navel	absent or very rare	absent or very rare
55	Fruit juice: total soluble solids	13.7° Bx	11.4° Bx
	Fruit juice: acid	0.79%	0.84%
	Fruit: number of seeds	0	10
60	Mature stage	Mid-late(mid-February)	Early(Mid-november)
	Parthenocarpy	presen	absent
	Self-incompatibility	present	present
	Tree vigor	strong	strong
65			middle

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying colored photographs illustrate the overall appearance and distinct characteristics of the new *Citrus reticulata* Blanco ‘Tamdo No. 3’ showing colors as true as is reasonably possible with colored reproduction of this type. The age of the plant in the photos are approximately 9 years. These photos were taken in 2012, in Korea. Colors in the photographs may differ slightly from the color values cited in the detained botanical description which accurately describes the color of the ‘Tamdo No. 3’.

The chart used in the identification of colors described herein is The R.H.S. Colour Chart of The Royal Horticultural Society, 2007, Fifth edition, except where general color terms of ordinary significance are used.

FIG. 1 provides multiple views of typical fruits harvested from the cultivar ‘Tamdo No. 3’. Top, bottom and side views of the whole, unpeeled fruit are shown as well as two cross-sectional views of the inside of the fruit.

FIG. 2 illustrates in full color typical foliage and fruits of ‘Tamdo No. 3’ on the tree.

DETAILED BOTANICAL DESCRIPTION

The following is a detailed description of the new cultivar ‘Tamdo No. 3’ plants as grown in Korea. The descriptions were taken from 2010 to 2012.

Botanical classification: *Citrus reticulata* Blanco ‘Tamdo No. 3’.

Propagation: ‘Tamdo No. 3’ is typically grafted onto rootstock of ‘Jegamna-27’.

Plant:

Age of the plant described.—Approximately 3 years.

Chromosome multiples.—2.

Plant type.—Upright.

Plant tree vigor.—Strong.

Plant density of spines.—None or sparse.

Foliage:

Leaf color.—Dark green (R.H.S. Green 137A).

Leaf length.—About 10.3 cm.

Leaf width.—About 4.8 cm.

Leaf length/width ratio.—About 2.2.

Leaf petiole length.—About 14.9 mm.

Leaf shape.—Ovate.

Margin of leaf.—Absent or weak.

Apex of leaf.—Acute.

Flower:

Flower calyx diameter.—About 3.2 mm.

Flower petal length.—About 18.2 mm.

Flower petal width.—About 8.9 mm.

Flower petal length/width ratio.—About 2.0.

Flower stamen length.—About 7.7 mm.

Flower anther color.—White (R.H.S. White NN155A).

Flower activity pollen.—Absent.

Fruit:

Fruit length.—About 59.7 mm.

Fruit width.—About 89.4 mm.

Fruit length/width ratio.—About 0.67.

Fruit neck.—Present.

Fruit areola.—Absent.

Fruit surface color.—Medium orange (R.H.S. Orange 30D).

Fruit surface roughness.—Smooth.

Fruit fresh color.—Medium orange (R.H.S. Orange 25A).

Fruit skin thickness.—About 2.7 mm.

Fruit skin strength.—Medium.

Fruit flesh rate.—About 82.9%.

Fruit sugar acid ratio.—About 17.34.

Fruit juice.—Total soluble solids: about 13.7° Bx.

Fruit juice acidity.—About 0.79%.

Mature stage.—Very early.

Parthenocarpy.—Present.

Self-incompatibility.—Present.

Tree vigor.—Strong.

Position of the broadest part of the fruit.—At middle.

Shape of the fruit.—Oblate.

Width of the fruit neck.—About 16.2 mm.

Length of the fruit neck.—About 6.5 mm.

The presence of depression at distal end of the fruit.—Absent.

The glossiness of the fruit surface.—Moderate.

The adherence to the flesh of the fruit rind.—Weak.

The presence of the navel of fruit.—Absent.

The time of maturity of fruit for consumption.—Mid-late (mid-February).

The polyembryony of the seed.—Absent.

Seed.—Absent.

Other fruit features.—For the very early mature stage, ‘Tamdo No.3’ should be protected cultured. Pruning on ‘Tamdo No.3’ is as the same as other variety which belongs to *Citrus reticulata* Blanco.

What is claimed is:

1. A new and distinct cultivar of *Citrus reticulata* Blanco plant named ‘Tamdo No. 3’ as herein illustrated and described.

* * * * *

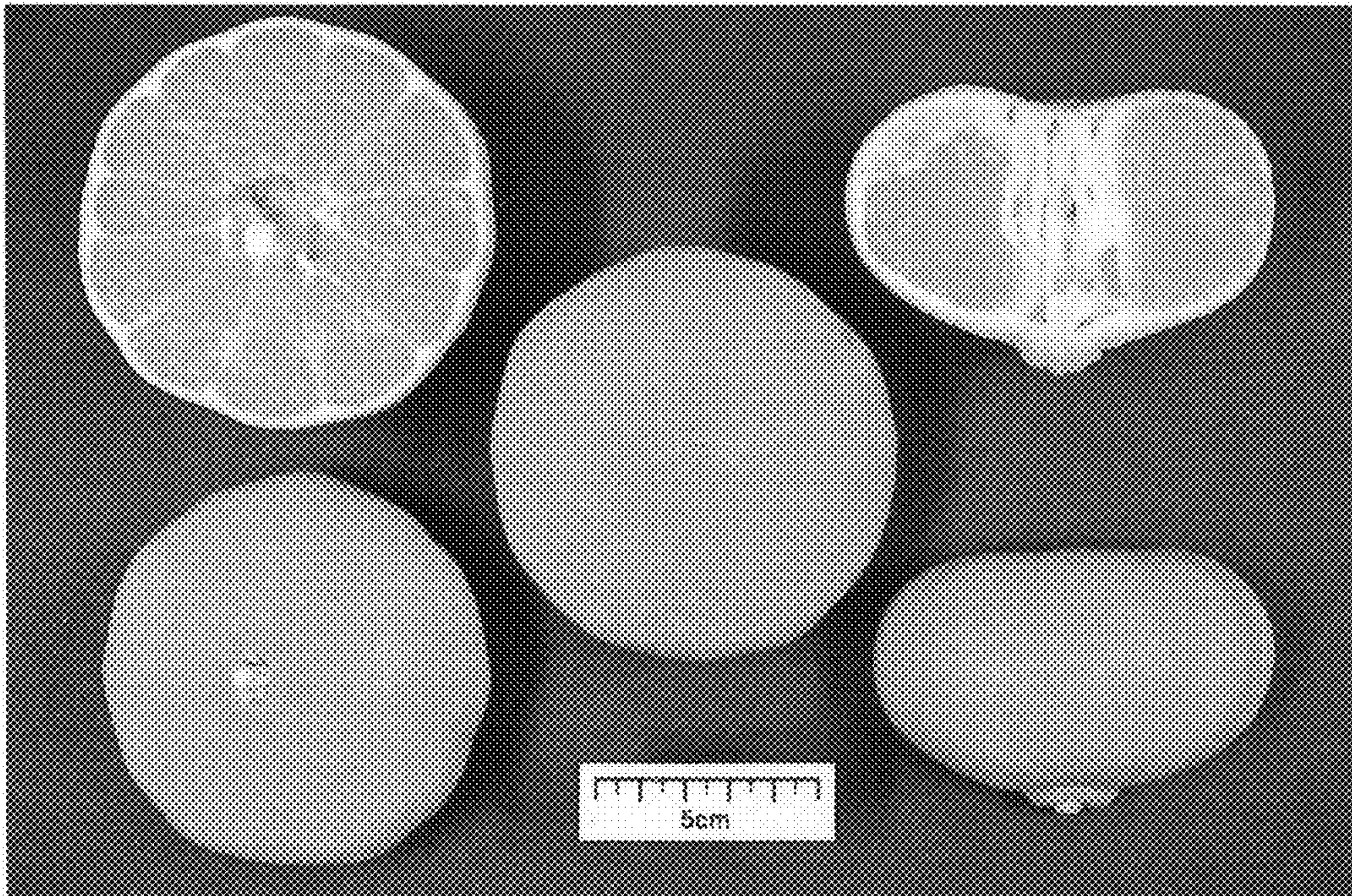


FIG. 1



FIG. 2