

Table 2. Quantitative characteristics of fruits and seeds of 13 mandarin varieties

Variety	Fruit weight (g)	Fruit diameter (cm)	Fruit length (cm)	Diameter of Fruit axis (mm)	Width of epicarp at equatorial area (mm)	Juice content in endocarp ml/Fr	Seed length (cm)	Seed width (cm)	Seed weight (g)
Clementine	81.1 L	5.5 K	5.1 I	1.5 G	0.20 E	25.0 M	1.21 F	0.55 EF	0.18 B
Celiopatra	84.7 K	5.16 J	4.60 L	2.30 B	0.10 G	36.0 I	1.33 CD	0.53 F	0.11 FG
Centra	105.8 H	6.33 H	5.80 G	1.90 E	0.10 G	39.0 G	1.32 D	0.60 C	0.13 DEF
Satsuma	157.6 D	7.28 B	7.00 B	2.00 D	0.40 A	38.6 H	0.00 I	0.00 H	0.00 H
Abd El- Razik	184.7 B	7.00 D	6.70 C	2.00 D	0.40 A	71.60 B	1.48 A	0.70 A	0.22 A
Sonbol	94.7 J	5.44 L	5.1 I	1.00 J	0.10 G	62.5 C	1.16 G	0.58 CD	0.14 DE
Tangerine Dancy	73.4 M	5.50 K	4.83 K	2.00 D	0.10 G	39.5 F	1.21 F	0.53 F	0.13 DEF
Malawy	440.8 A	7.10 C	7.40 A	1.30 H	0.30 D	75.0 A	1.13 H	0.50 G	0.17 BC
Chine mandarin cv	155.4 E	5.75 I	6.37 D	0.70 K	0.15 F	48.0 D	1.32 D	0.65 C	0.10 G
Aswan	181.11 C	7.90 A	6.06 E	3.10 A	0.36 B	42.50 E	1.35 C	0.56 DE	0.14 DE
Sayed Marri	134.6 F	6.50 G	5.60 H	1.25 I	0.40 A	35.20 K	1.40 B	0.70 A	0.12 EFG
El-Shorbagee	105.3 I	6.66 F	4.86 J	2.25 C	0.33 C	35.25 J	1.28 E	0.63 B	0.11 FG
Balady	122.1 G	6.75 E	6.00 F	1.75 F	0.30 D	33.75 L	1.12 H	0.68 A	0.15 CD

Means followed by the same letter within the same column are not significantly different ($P \leq 0.05$; LSD test)

ml/Fr = ml of juice content per fruit.

Table 3. Qualitative characteristics of tree, leaf and flower of 13 mandarin varieties ¹.

Variety	Tree shape	Tree growth habit	Intensity of green color of leaf blade	Leaf lamina attachment	Leaf lamina shape	Leaf lamina margin	Leaf apex	Absence or presence of petiole wings	Length of anthers relative to stigma
Clementine,	Obloid	Spreading	Green	Sessile	Lanceolate	Entire	Acute	Absent	longer
Celiopatra	Obloid	Spreading	Green	Sessile	Lanceolate	Dentate	Acuminate	Absent	Shorter
Centra	Spheroid	Drooping	Green	Brevipetiolate	Elliptic	Dentate	Obtuse	Present	Medium
Satsuma	Obloid	Drooping	Green	Brevipetiolate	Ovate	Sinuate	Obtuse	Absent	Shorter
Abd El- Razik	Obloid	Drooping	Dark	Sessile	Lanceolate	Dentate	Obtuse	Absent	Shorter
Sonbol	Spheroid	Spreading	Dark	Brevipetiolate	Lanceolate	Sinuate	Acuminate	Present	Medium
Tangerine Dancy	Spheroid	Drooping	Green	Sessile	Ovate	Sinuate	Obtuse	Present	Shorter
Malawy	Spheroid	Spreading	Dark	Brevipetiolate	Lanceolate	Sinuate	Acuminate	Present	Medium
Chine mandarin cv	Obloid	Drooping	Green	Brevipetiolate	Ovate	Dentate	Acuminate	Present	Medium
Aswan	Obloid	Drooping	Green	Sessile	Lanceolate	Dentate	Acuminate	Absent	Medium
Sayed Marri	Spheroid	Spreading	Green	Sessile	Lanceolate	Entire	Acuminate	Absent	Medium
El-Shorbagee	Spheroid	Spreading	Dark	Sessile	Lanceolate	Dentate	Acuminate	Absent	Medium
Balady	Obloid	Drooping	Green	Sessile	Lanceolate	Entire	Acuminate	Absent	Longer

¹Characteristics were described for citrus by the International Plant Genetic Resources Institute (1999).

Table 4. Qualitative characteristics of fruit of 13 mandarin varieties

Varieties	Fruit shape	Shape of fruit base	Shape of fruit apex,	Fruit epicarp color	Fruit surface texture	Adherence of mesocarp to endocarp	Density of oil gland on fruit surface	Color of fruit pulp
Clementine	Spheroid	Convex	Truncate	orange	Papillate	Medium	Low	Orange
Celiopatra	Pyriform	Necked	Truncate	Dark orange	Smooth	Weak	High	Orange
Centra	Obloid	Collared with neck	Depressed	orange	Rough	Weak	Intermediate	Orange
Satsuma	Pyriform	Concave	Depressed	orange	Papillate	Weak	Intermediate	Orange
Abd El-Razik	Spheroid	Convex	Truncate	Dark yellow	Pitted	Strong	Intermediate	yellow
Sonbol	Spheroid	Truncate	Truncate	Light orange	Smooth	Weak	Intermediate	yellow
Tangerine Dancy	Pyriform	Necked	Depressed	Dark orange	Smooth	Medium	Intermediate	Orange red
Malawy	Pyriform	Concave Collared	Truncate	orange	Pitted	Weak	Intermediate	orange
Chine mandarin cv	Obloid	Truncate	Truncate	orange	Pitted	Medium	Intermediate	orange
Aswan	Obloid	Truncate	Depressed	Green yellow	Smooth	Weak	High	orange
Sayed Marri	Obloid	Truncate	Depressed	orange	Rough	Weak	Intermediate	orange
El-Shorbagee	Obloid	Truncate	Depressed	yellow	Smooth	Medium	Intermediate	orange
Balady	Pyriform	Necked	Depressed	orange	Papillate	Weak	High	orange

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