**Table S1** 185 species and cultivars of *Oxalis* were tested.

|  |  |  |  |
| --- | --- | --- | --- |
| No. | Latin name | No. | Latin name |
| 1 | *O. luteola* | 94 | *O. obtusa* ‘Damask Rose × Rose 5’ |
| 2 | *O. nortieri* | 95 | *O. obtusa* ‘Deep Pink’ |
| 3 | *O. ambigua* | 96 | *O. obtusa* ‘Diva’ |
| 4 | *O. annae* | 97 | *O. obtusa* ‘Fairy’ |
| 5 | *O. anomala* | 98 | *O. obtusa* ‘Fanta’ |
| 6 | *O. attaquana* ‘Pink’ | 99 | *O. obtusa* ‘Harvest Moon’ |
| 7 | *O. bicolor* | 100 | *O. obtusa* ‘High Pink’ |
| 8 | *O. orange* ‘Pie’ | 101 | *O. obtusa* ‘High Yellow’ |
| 9 | *O.* ‘Blood’ | 102 | *O. obtusa* ‘Honey’ |
| 10 | *O. bowiei* | 103 | *O. obtusa* ‘Lady’ |
| 11 | *O. brasliensis* | 104 | *O. obtusa* ‘Lava Splash’ |
| 12 | *O. brazil* ‘Yellow’ | 105 | *O. obtusa* ‘Lemen Cream’ |
| 13 | *O. callosa* | 106 | *O. obtusa* ‘Lilac Grey’ |
| 14 | *O.callosa* ‘Damselfly’ | 107 | *O. obtusa* ‘Mist’ |
| 15 | *O. callosa* ‘Hmong Bride’ | 108 | *O. obtusa* ‘Moeran’ |
| 16 | *O. cathara* ‘Lemon Light’ | 109 | *O. obtusa* ‘Moonglow’ |
| 17 | *O. cathara* ‘White’ | 110 | *O. obtusa* ‘Orange Dream’ |
| 18 | *O. cathara* ‘Yellow’ | 111 | *O. obtusa* ‘Peach & Cream Red Form’ |
| 19 | *O. clanwilliam* | 112 | *O. obtusa* ‘Pink Champagne’ |
| 20 | *O. clavifolia* | 113 | *O. obtusa* ‘Pink Drangonfly’ |
| 21 | *O. compressa* | 114 | *O. obtusa* ‘Pinwheel’ |
| 22 | *O. compressa* ‘Double’ | 115 | *O. obtusa* ‘Polished Copper’ |
| 23 | *O. convesula* | 116 | *O. obtusa* ‘Primrose’ |
| 24 | *O. corymbosa* | 117 | *O. obtusa* ‘Red Hood’ |
| 25 | *O. corymbosa* ‘Aureo-reticulata’ | 118 | *O. obtusa* ‘Red Shadow’ |
| 26 | *O. bifurca* ‘Pink’ | 119 | *O. obtusa* ‘Rhodo’ |
| 27 | *O. crispiflora* | 120 | *O. obtusa* ‘Rice’ |
| 28 | *O. dentata* | 121 | *O. obtusa* ‘Rose’ |
| 29 | *O. engleriana* | 122 | *O. obtusa* ‘Rosey Breeze’ |
| 30 | *O. exserta* | 123 | *O. obtusa* ‘Saffower’ |
| 31 | *O. fabaefolia* | 124 | *O. obtusa* ‘Siberite’ |
| 32 | *O. fergusoniae* | 125 | *O. obtusa* ‘Spring Charm Orange’ |
| 33 | *O. flabelifolia* | 126 | *O. obtusa* ‘Spring Charm Pink’ |
| 34 | *O. flava* ‘Gifberg’ | 127 | *O. obtusa* ‘Strawberry Cream’ |
| 35 | *O. flava* ‘Large’ | 128 | *O. obtusa* ‘Striped Back’ |
| 36 | *O. flava* ‘Namaquensis’ | 129 | *O. obtusa* ‘Sugar and Spice’ |
| 37 | *O. flava* ‘Pakhuis Pass’ | 130 | *O. obtusa* ‘Summer Song’ |
| 38 | *O. flava* ‘Parama Pink’ | 131 | *O. obtusa* ‘Sun Halo’ |
| 39 | *O.* sp*.* ‘Fluorescent Yellow’ | 132 | *O. obtusa* ‘Sunbird’ |
| 40 | *O.* sp*.* ‘Forest Eye’ | 133 | *O. obtusa* ‘Sundisc’ |
| 41 | *O. fireworks* | 134 | *O. obtusa* ‘Sunset Large Form’ |
| 42 | *O. fragrans* | 135 | *O. obtusa* ‘Sunshine’ |
| 43 | *O. glabra* ‘Omar’ | 136 | *O. obtusa* ‘Twilight’ |
| 44 | *O. glabra* ‘Pinky White’ | 137 | *O. obtusa* ‘Veil’ |
| 45 | *O. gold* ‘Island’ | 138 | *O. obtusa* ‘Yellow River’ |
| 46 | *O. goniorhiza* | 139 | *O.* sp*.* ‘*Orange* Pie’ |
| 47 | *O. gracilis* | 140 | *O. orbicularis* |
| 48 | *O. haedulipes* | 141 | *O. pardalis* ‘Whit’ |
| 49 | *O. hawthornides* | 142 | *O. perdicaria* |
| 50 | *O. helicoides* | 143 | *O. pes-caprae* |
| 51 | *O. hirta* ‘Adpressa’ | 144 | *O. pes-caprae* ‘Green Leaf’ |
| 52 | *O. hirta* ‘Cherry’ | 145 | *O. phloxidiflora* |
| 53 | *O. hirta* ‘Blood Moon’ | 146 | *O. polyphylla* var. *heptaphylla* |
| 54 | *O. hirta* ‘Candy’ | 147 | *O. pulchella* ‘Tricolor’ |
| 55 | *O. hirta* ‘Dark Eye’ | 148 | *O. pulchella* var. *tomentosa* |
| 56 | *O. hirta* ‘Dark’ | 149 | *O.* sp.‘P*umpkin* Pie’ |
| 57 | *O. hirta* ‘Gothenburg’ | 150 | *O.* sp.‘Puppy Love’ |
| 58 | *O. hirta* ‘Mauve’ | 151 | *O. purpurea* ‘Alba’ |
| 59 | *O. hirta* ‘Pale Lavender’ | 152 | *O.* *purpurea* ‘Carrol Jolly’ |
| 60 | *O. hirta* ‘Pale Pink’ | 153 | *O. purpurea* ‘Cherry’ |
| 61 | *O. hirta* ‘Peach’ | 154 | *O. purpurea* ‘Deep Rose’ |
| 62 | *O. hirta* ‘Pupu’ | 155 | *O. purpurea* ‘Garnet’ |
| 63 | *O. hirta* ‘Rosa’ | 156 | *O. purpurea* ‘High Bullitt’ |
| 64 | *O. hirta* var. *tubiflora* | 157 | *O. purpurea* ‘Lavender & White’ |
| 65 | *O. latifolia* | 158 | *O. purpurea* ‘Lavender’ |
| 66 | *O. lily* | 159 | *O. purpurea* ‘Pale Pink’ |
| 67 | *O. livida* | 160 | *O. purpurea* ‘Pink Giant’ |
| 68 | *O. lobata* | 161 | *O. purpurea* ‘Ribbon’ |
| 69 | *O. lobata* ‘Melanositicta’ | 162 | *O. purpurea* ‘Ruffles’ |
| 70 | *O. luteola* ‘Maculata’ | 163 | *O. purpurea* ‘Salmon’ |
| 71 | *O. luteola* ‘MV4960B’ | 164 | *O. purpurea* ‘Sunset’ |
| 72 | *O. luteola* ‘MV5885’ | 165 | *O. purpurea* ‘Taru’ |
| 73 | *O. luteola* ‘Splash’ | 166 | *O. purpurea* ‘Ulifoura’ |
| 74 | *O. massoniana* | 167 | *O. purpurea* ‘Yellow’ |
| 75 | *O. massonorum* | 168 | *O. pusilla* |
| 76 | *O. meisneri* | 169 | *O. rococo* |
| 77 | *O. minuta* | 170 | *O. semiloba* |
| 78 | *O. monophylla* | 171 | *O. simplex* |
| 79 | *O. namaquana* | 172 | *O. sonderiana* |
| 80 | *O. namaquana* ‘New’ | 173 | *O. stellata* |
| 81 | *O. namibia* | 174 | *O. stenorrhyncha* |
| 82 | *O. nidulans* | 175 | *O.* sp.‘Strawberry Cookie’ |
| 83 | *O. nidulans* ‘Pompom’ | 176 | *O. susan* |
| 84 | *O. obtusa* ‘Amber’ | 177 | *O. tale* |
| 85 | *O. obtusa* ‘Apple’ | 178 | *O. tenella* |
| 86 | *O. obtusa* ‘Apricot Cream’ | 179 | *O. tenuifolia* |
| 87 | *O. obtusa* ‘Aurora’ | 180 | *O. triangularis* ‘Green’ |
| 88 | *O. obtusa* ‘Burning Heart’ | 181 | *O. triangularis* ‘Purple White’ |
| 89 | *O. obtusa* ‘Caramel Glaze’ | 182 | *O. versicolor* |
| 90 | *O. obtusa* ‘Ceres Salmon’ | 183 | *O. yael* |
| 91 | *O. obtusa* ‘Cerise Stone’ | 184 | *O.* sp*.* ‘Yellow Vein’ |
| 92 | *O. obtusa* ‘Coral’ | 185 | *O. zeekoevleyensis* |
| 93 | *O. obtusa* ‘Coral × Rose1’ |  |  |

Note: The experimental materials used in this table are listed in Latin name order.

**Table S2** Observation table of characters of *Oxalis*.

Project Contents of the record

Date and place of observation: (1) Observation date: (2) Observation location:

Species/Breed Name: Latin name:

No:

Plant (1) Plant type: ① Upright type; ② Vine type; ③ Rosette-shaped; ④ Clustered type

(2) Plant: height (cm):

(3) Plant: crown width (cm):

(4) Plant: growth type: ① Annual; ② Perennial; ③ Bulb

Above-ground main stem: (1) Main stem above-ground: ① Without; ② With

(2) Main stem: above-ground thickness (mm):

(3) Main stem: above-ground length (cm):

(4) Main stem: inter-node length (cm):

(5) Main stem: the color of the above-ground: ① Yellow-green; ② Green;

③ Red; ④ Sorrel; ⑤ Maroon; ⑥ Brown

(6) Main stem: above-ground villi: ① Less; ② Medium; ③ Much

(7) Main stem: above-ground part of the branch: ① Less; ② Medium;

③ Much

Leaf (1) Leaf: occurrence location: ① Only the subterranean part of the main stem; ② Only the upper ground part of the main stem; ③ The main stem occurs simultaneously above ground and below ground

(2) Leaf: Type: ① Univalent; ② Compound leaf

(3) Only applicable to compound leaf varieties: Leaf type: ① Three-out leave;② Four-out leaves; ③Five-out leaves;④ Irregularities; ⑤ Pinnately Compound leaf

(4) Compound leaf: length (cm):

(5) Compound leaf: width (cm):

(6) Leaflets: shape: ① Y-shaped; ② Inverted long triangle; ③ Lanceolate; ④ Inverted-lanceolate; ⑤ Obovate; ⑥Oval; ⑦ Inverted heart; ⑧ Inverted triangle; ⑨ Rotundity

(7) Leaflets: apex shape: ① Sharp; ② Blunt; ③ Rotundity; ④ Flat cut;

⑤ Heart-shaped

(8) Leaflets apex: with or without: ① Without; ② With

(9) Leaflets apex: depth of concave: ① Shallow; ② Medium; ③ Deep

(10) Leaflets: base shape: ① Sharp; ② Blunt; ③ Rotundity

(11) Leaflets: length (cm):

(12) Leaflets: width (cm):

(13) Leaf: surface fold: ① Without; ② With

(14) Leaf: inverted along the midrib: ① Without; ② With

(15) Leaf: degree of inversion along the midrib: ① Weak; ② Medium;

③ Strong

(16) Leaf: upper surface villi: ① Without; ② With

(17) Leaf: lower surface villi: ① Without; ② With

(18) Leaf: marginal hair: ① Without; ② With

(19) Leaf: texture: ① Paper; ② Meat quality; ③ Velvet

(20) Leaf: closed at night: ① Without; ② With

(21) Leaf: upper surface color: ① Yellow ; ② Yellow-green; ③ Green;

④ Gray-green; ⑤ Dark-green; ⑥Red-purple

(22) Leaf: glossy: ① Without; ② With

(23) Leaf: thickness (mm):

(24) Leaf: spot: ① Without; ② With

(25) Leaf: spot type: ① Scatter point; ② Medium spot; ③ Veining;

④ leaflets base; ⑤ Leaflets center

(26) Leaf: number of spot colors: ①One；②Two；③ More than two

(27) Leaf: spot color: ① White; ② Gray-green; ③ Dark-green; ④ Red-purple; ⑤ Black-brown

(28) Leaf: spot stability: ① Without; ② With

(29) Leaf: the way of birth: ① Basal birth; ② Stem-growing

(30) Leaf: vein obviousness: ① None or extremely weak; ② Weak;

③ Medium; ④ Strong

(31) Only for varieties with moderate veins or above: obvious leaf vein color:

① Yellow; ② Light green; ③ Green; ④ Gray-green; ⑤ Brown-green;

⑥ Red-purple

(32) Leaf dorsal: heterochromatic: ① Without; ② With

(33) Leaf dorsal: heterochromatic color: ① Red; ② Red-purple; ③ Purple

(34) Young leaf: color: ① Yellow-green; ② Green; ③ Gray-green; ④ Red-purple

(35) Plants: number of leaves: ① Few; ② Medium; ③ Much

Petiole (1) Petiole: with or without: (1) Without; (2) With

(2) Petiole: thickness (mm):

(3) Petiole: length (cm):

(4) Petiole: basal color: ① Yellow; ② Yellow-green; ③ Green;

④ Green-brown; ⑤ Red; ⑥ Red-purple; ⑦ Red-brown

(5) Petiole: central color: ① Yellow; ② Yellow-green; ③ Green;

④ Green-brown; ⑤ Red; ⑥ Red-purple; ⑦ Red-brown

(6) Petiole: villi: ① Without; ② With

(7) Petiole: mark: ① Without; ② With

(8) Petiole: spot type: ① Scatter point; ② Medium spot; ③ Veining;

④ Leaflets base; ⑤ Leaflets center

(9) Petiole: number of spot colors: ①One；②Two；③ More than two

(10) Petiole: spot color: ① White; ② Gray-green; ③ Dark-green; ④Red-purple; ⑤ Black-brown

(11) Petiole: spot stability: ① Without; ② With

Inflorescence (1) Inflorescence: with or without：① Without; ② With

(2) Inflorescence: type: ① Single flower; ② Near umbrella

(3) Only applicable to varieties with inflorescence: Inflorescence: length (cm):

(4) Only applicable to varieties with inflorescence: Inflorescence: diameter (cm):

(5) Only applicable to varieties with inflorescence: Inflorescence: number of flowers:

(6) Only applicable to varieties with inflorescence: Inflorescence: quantity:

(7) Only for varieties with inflorescence: peduncle: length (cm):

(8) Only for varieties with inflorescence: peduncle: thickness (mm):

(9) Only for varieties with inflorescence: peduncle: hardness: ① Soft;

② Medium;③ Hard

(10) Only for varieties with inflorescence: peduncle: villi: ① Without;

② With

(11) Only for varieties with inflorescence: peduncle: villi: ① Without;

② With

(12) Only for varieties with inflorescence: peduncle color: ① Yellow;

② Yellow-green; ③ Green; ④ Brown-green; ⑤ Red; ⑥ Red and green; ⑦ Red-brown

(13) Only for varieties with inflorescence: peduncle color: ① Yellow;

② Yellow-green; ③ Green; ④ Brown-green; ⑤ Red; ⑥ Red and green; ⑦ Red-brown

Pedicel (1) Pedicel: length (cm):

(2) Pedicel: width (mm):

(3) Pedicel: color: ① Yellow-green; ② Green; ③ Red and green;

④ Yellow; ⑤ Red

(4) Pedicel: villi: ① Without; ② With

Flower (1) Only applicable to single-flower varieties: flower: the way of birth:

① Basal; ② Axillary

(2) Flower: status: ① Erect; ② Horizontal; ③ Sagging

(3) Flower: shape: ① Cup-shaped; ② Bell-shaped

(4) Flower: diameter (cm):

(5) Flower: number of colors: ① Monochromatic; ② Multicolored;

(6) Flower: secondary color: ① Edge; ② Other

(7) Flower: fragrance: ① Without; ② With

(8) Flower: flatness when fully open: ① Expand; ② Section expands

(9) Flower: type: ① Single petal; ② Double petal

(10) Flower: relative to leaf height: ① Below; ② Equal height; ③ Above

(11) Flower: closed at night: ① Without; ② With

Petal (1) Petal: vein: ① Not prominent; ② Prominent

(2) Petal vein color: ① White; ② Yellow; ③ Pink; ④ Orange; ⑤ Red; ⑥ Rose red; ⑦ Purple;⑧ Others

(3) Petal: overlapping: ① Without; ② With

(4) Petal: degree of overlap: ① Weak; ② Medium; ③ Strong

(5) Petal: upper surface color: ① White; ② Beige; ③ Yellow; ④ Pink; ⑤ Pink-purple; ⑥ Orange; ⑦ Rose red; ⑧ Red; ⑨ Purple

(6) Only applicable to multi-colored varieties: the main color of the upper surface of the petal: ①White; ② Yellow;

③ Beige; ④ Pink; ⑤ Pink-purple; ⑥ Orange; ⑦ Rose red; ⑧ Red; ⑨Purple

(7) Petal: lower surface color：① White; ② Beige; ③ Yellow; ④ Pink; ⑤ Pink-purple; ⑥ Orange; ⑦ Rose red;⑧ Red; ⑨ Purple

(8) Only suitable for multi-colored varieties: the main color of the lower surface of the petal: ① White; ② Yellow; ③ Beige; ④ Pink; ⑤ Pink-purple; ⑥ Orange; ⑦ Rose red; ⑧ Red; ⑨ Purple

(9) Petal: length (cm):

(10) Petal: width (cm):

(11) Petal: thickness (mm):

(12) Petal: shape: ① Obovate; ② Inverted triangle; ③ Rotundity

(13) Petal: tip shape: ① Blunt; ② Rotundity; ③ Flat cut

(14) Petal: spot: ① Without; ② With

(15) Petal: spot type: ① Scatter point; ② Medium spot; ③ Stripe; ④ Edge

(16) Petal: spot color: ① Red; ② Red-purple; ③ Purple

(17) Petal: number of spot colors: ① One；② Two；③ More than two

(18) Petal: spot stability: ① Without; ② With

(19) Petal: basal symphysis: ① Without; ② With

(20) Petal: wavy edge: ① Without; ② With

(21) Flower throat: color: ① White; ② Yellow; ③ Pink; ④ Orange;

⑤ Red; ⑥ Red-purple; ⑦ Purple

Male and female stamen (1) Male and female stamen: With or without ① Without; ② With

(2) Flower column: type: ① Distyly; ② Tristyly

(3) Flower column: relative to anther height: ① Higher than anthers; ② Equal height with anthers; ③ Between long and short anthers;④ Lower than short anthers; ⑤ Equal height with short anthers

(4) Stamens: quantity: ① Five long five short; ② Five out of five in length;

③ Five medium five short; ④ Less than ten

(5) Filigree: color: ① White; ② Yellow; ③ Yellow-green

(6) Flower column: color: ① White; ② Yellow; ③ Yellow-green

Calyx (1) Calyx: status: ① Spreading; ② Inverted volume

(2) Calyx: shape: ① Lanceolate; ② Oval

(3) Calyx: outer surface villi: ① Without; ② With

(4) Calyx: the way of basal growth: ① Grow separately; ② Grow together

(5) Calyx: length (cm):

(6) Calyx: width (cm):

(7) Calyx: thickness (mm):

(8) Calyx: arrangement: ① Shingled arrangement; ② Tweezers arranged;

③ One piece is completely inside and one is completely outside

(9) Calyx: color: ① Yellow-green; ② Green; ③ Red and green;④ Red and yellow; ⑤ Red-purple and green; ⑥ Red-brown and green

Flower volume (1) Whole flower: quantity: ① ≥20 flowers; ② ≤20 flowers;

(2) Only applicable to single-flower varieties: the number of single-flowers

Florescence (1) Flowering period: ① Early; ② Medium; ③ Late

(2) Flower: Flowering season: ① Spring; ② Autumn; ③ Winter; ④ Four seasons

Seed bulb (1) Seed bulb: width (cm):

(2) Seed bulb: length (cm):

(3) Seed bulb: shape: ① Lanceolate; ② Oval; ③ Elliptic; ④ Spherical;

⑤ Cylindrical; ⑥ Long strips; ⑦ The two ends are pointed and rounded in the middle

(4) Seed bulb: color: ① Light yellow; ② Light brown; ③ Yellow-brown;

④ Brown; ⑤ Brown

(5) Seed bulb: reproductive ability: ① Weak; ② Medium; ③ Strong

**Table S3**Statistical analysis of QN.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | | Characteristic | | Max. | Min. | Mean value | Median | Standard deviation | CV between species/varieties | | CV within species/varieties |
| 1 | Plant: height (cm) | | 29.60 | | 2.00 | 7.82 | 6.90 | 4.58 | 58.57% | 13.58% | |
| 2 | Plant: crown width (cm) | | 28.60 | | 2.40 | 10.42 | 9.80 | 4.09 | 39.25% | 12.62% | |
| 3 | Main stem: above-ground thickness (mm) | | 3.50 | | 0.42 | 1.78 | 1.78 | 0.70 | 39.32% | 13.39% | |
| 4 | Main stem: above-ground length (cm) | | 29.00 | | 2.80 | 9.81 | 8.20 | 5.36 | 54.64% | 13.37% | |
| 5 | Main stem: above-ground inter-node length (cm) | | 10.70 | | 3.50 | 5.10 | 4.80 | 1.05 | 20.59% | 15.11% | |
| 6 | Compound leaf: width (cm) | | 8.00 | | 0.81 | 2.87 | 2.60 | 1.20 | 41.81% | 11.19% | |
| 7 | Compound leaf: length (cm) | | 9.30 | | 0.70 | 2.44 | 2.10 | 1.29 | 52.90% | 11.50% | |
| 8 | Leaflets: length (cm) | | 6.60 | | 0.42 | 1.77 | 1.50 | 0.96 | 54.24% | 13.21% | |
| 9 | Leaflets: width (cm) | | 6.80 | | 0.10 | 1.33 | 1.15 | 1.00 | 75.19% | 13.18% | |
| 10 | Leaflets: thickness (mm) | | 0.79 | | 0.06 | 0.27 | 0.24 | 0.12 | 44.44% | 10.44% | |
| 11 | Petiole: thickness (mm) | | 2.88 | | 0.11 | 0.86 | 0.74 | 0.48 | 55.10% | 10.83% | |
| 12 | Petiole: length (cm) | | 21.80 | | 0.50 | 5.15 | 4.60 | 3.03 | 58.83% | 14.52% | |
| 13 | Inflorescence: length (cm) | | 7.00 | | 1.00 | 3.62 | 3.60 | 0.99 | 27.35% | 13.17% | |
| 14 | Inflorescence: diameter (cm) | | 9.60 | | 1.50 | 5.09 | 5.00 | 1.86 | 36.54% | 21.80% | |
| 15 | Inflorescence: number of flowers | | 8.00 | | 2.00 | 5.07 | 5.00 | 1.83 | 36.10% | 19.51% | |
| 16 | Inflorescence: quantity | | 35.00 | | 3.00 | 11.37 | 9.00 | 7.70 | 67.72% | 27.28% | |
| 17 | Only for varieties with inflorescence: peduncle: length (cm) | | 30.00 | | 7.80 | 12.39 | 11.30 | 4.21 | 33.98% | 14.48% | |
| 18 | Only for varieties with inflorescence: peduncle: coarse (mm) | | 3.20 | | 0.86 | 1.58 | 1.51 | 0.45 | 28.48% | 14.25% | |
| 19 | Only for single-flower varieties: number of single-flowers | | 234.00 | | 2.00 | 20.69 | 13 | 25.18 | 97.85% | 31.20% | |
| 20 | Pedicel: length (cm) | | 19.10 | | 1.00 | 4.75 | 3.80 | 3.19 | 67.16% | 14.87% | |
| 21 | Pedicel: width (mm) | | 1.95 | | 0.10 | 0.89 | 0.85 | 0.32 | 36.37% | 9.15% | |
| 22 | Flower: diameter (cm) | | 4.80 | | 1.20 | 2.75 | 2.65 | 0.74 | 26.91% | 7.68% | |
| 23 | Petal: length (cm) | | 4.30 | | 0.80 | 2.12 | 2.10 | 0.59 | 27.83% | 8.71% | |
| 24 | Petal: width (cm) | | 2.20 | | 0.40 | 1.09 | 1.10 | 0.36 | 33.02% | 9.14% | |
| 25 | Petal: thickness (mm) | | 0.14 | | 0.02 | 0.06 | 0.06 | 0.02 | 33.33% | 11.99% | |
| 26 | Calyx: length (cm) | | 1.30 | | 0.20 | 0.66 | 0.65 | 0.21 | 31.82% | 9.14% | |
| 27 | Calyx: width (cm) | | 0.42 | | 0.10 | 0.20 | 0.20 | 0.06 | 30.00% | 13.34% | |
| 28 | Calyx: thickness (mm) | | 0.25 | | 0.03 | 0.11 | 0.11 | 0.05 | 45.46% | 13.57% | |

**Table S4**

The grade of quantitative characteristics.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Characteristic | Grade (cm) | | | | | | |  |  |
| 1 | | | 2 | 3 | 4 | 5 | | |
| Plant: height | ≤1.93 | | | 1.94-5.40 | 5.41-10.22 | 10.23-13.69 | ≥13.70 | | |
| Plant: crown width | ≤5.18 | | | 5.19-8.28 | 8.29-12.57 | 12.58-15.67 | ≥15.68 | | |
| Main stem: above-ground thickness |  | | | ≤1.40 | 1.41-2.14 | ≥2.15 |  | | |
| Main stem: above-ground length | ≤1.90 | | | 1.91-6.57 | 6.58-13.05 | 13.06-17.71 | ≥17.72 | | |
| Compound leaf: width | ≤1.33 | | | 1.34-2.24 | 2.25-3.50 | 3.51-4.40 | ≥4.41 | | |
| Compound leaf: length | ≤1.33 | | | 1.34-2.24 | 2.25-3.50 | 3.51-4.40 | ≥4.41 | | |
| Leaflets: length | ≤0.54 | | | 0.55-1.27 | 1.28-2.28 | 2.29-3.01 | ≥3.02 | | |
| Leaflets: width | ≤0.05 | | | 0.06-0.80 | 0.81-1.86 | 1.87-2.61 | ≥2.62 | | |
| Leaflets: thickness | ≤0.10 | | | 0.11-0.19 | 0.20-0.33 | 0.34-0.42 | ≥0.43 | | |
| Petiole: coarseness | ≤0.25 | | | 0.26-0.60 | 0.61-1.11 | 1.12-1.47 | ≥1.48 | | |
| Petiole: length | ≤1.29 | | | 1.30-3.57 | 3.58-6.73 | 6.74-9.01 | ≥9.02 | | |
| Inflorescence: length |  | | | ≤3.09 | 3.10-4.14 | ≥4.15 |  | | |
| Inflorescence: diameter |  | | | ≤4.11 | 4.12-6.07 | ≥6.08 |  | | |
| Inflorescence: number of flowers |  | | | ≤4 | 5-6 | ≥7 |  | | |
| Inflorescence: quantity |  | | | ≤6 | 7-18 | ≥19 |  | | |
| Peduncle: length |  | | | ≤10.17 | 10.18-14.60 | ≥14.61 |  | | |
| Peduncle: coarseness | ≤0.99 | | | 1.00-1.33 | 1.34-1.82 | 1.83-2.16 | ≥2.17 | | |
| Pedicel: length | ≤0.65 | | | 0.66-3.07 | 3.08-6.42 | 6.43-8.84 | ≥8.85 | | |
| Pedicel: coarseness | ≤0.47 | | | 0.48-0.71 | 0.72-1.06 | 1.06-1.30 | ≥1.31 | | |
| Flower: diameter | ≤1.80 | | | 1.81-2.36 | 2.37-3.14 | 3.15-3.70 | ≥3.71 | | |
| Petal: length | ≤1.35 | | | 1.36-1.80 | 1.81-2.43 | 2.44-2.88 | ≥2.89 | | |
| Petal: width |  |  |  | ≤0.89 | 0.90-1.28 | ≥1.29 |  |  |  |
| Petal: thickness |  |  |  | ≤0.04 | 0.05-0.08 | ≥0.09 |  |  |  |
| Calyx: length |  |  | ≤0.38 | 0.39-0.54 | 0.55-0.77 | 0.78-0.92 | ≥0.93 |  |  |
| Calyx: width |  |  | ≤0.11 | 0.12-0.16 | 0.17-0.23 | 0.24-0.28 | ≥0.29 |  |  |
| Calyx: thickness |  |  | ≤0.04 | 0.05-0.08 | 0.09-0.14 | 0.15-0.18 | ≥0.19 |  |  |

**Table S5** Standard cultivars of *Oxalis*

|  |  |  |  |
| --- | --- | --- | --- |
| No. | Latin name | No. | Latin name |
| 1 | *O.* *attaquana* ‘Pink’ | 14 | *O. luteola* ‘Splash’ |
| 2 | *O. brazil* ‘Yellow’ | 15 | *O. nidulans* ‘Pompom’ |
| 3 | *O. callosa* ‘Hmong Bride’ | 16 | *O. obtusa* ‘Lemen Cream’ |
| 4 | *O. cathara* ‘White’ | 17 | *O.* *obtusa* ‘Primrose’ |
| 5 | *O. cathara* ‘Yellow’ | 18 | *O. obtusa* ‘Sundisc’ |
| 6 | *O. corymbosa* ‘Aureo-reticulata’ | 19 | *O. pulchella* ‘Tricolor’ |
| 7 | *O. deppei* ‘Iron Cross’ | 20 | *O. purpurea* ‘Alba’ |
| 8 | *O. flava* ‘Large’ | 21 | *O. purpurea* ‘Carrol Jolly’ |
| 9 | *O.* *flava* ‘Parama Pink’ | 22 | *O. purpurea* ‘Deep Rose’ |
| 10 | *O. glabra* ‘Pinky White’ | 23 | *O. purpurea* ‘Ulifoura’ |
| 11 | *O.* *hirta* ‘Blood Moon’ | 24 | *O.* sp. ‘Pumpkin Pie’ |
| 12 | *O. hirta* ‘Dark Eye’ | 25 | *O. triangularis* ‘Green’ |
| 13 | *O.* *luteola* ‘Maculata’ | 26 | *O. triangularis* ‘Purple White’ |

**图示

描述已自动生成**

**Fig. S1.** Illustrations for individual characteristics

Note: ① Plant crown width; ② Plant height; ③ Above-ground thickness of main stems; ④ Compound leaf length;

⑤ Compound leaf width ; ⑥ Leaflets width; ⑦ Leaflets length; ⑧ Petiole length; ⑨ Petiole coarseness

**图示

描述已自动生成**

**Fig. S2**. Illustrations for individual characteristics

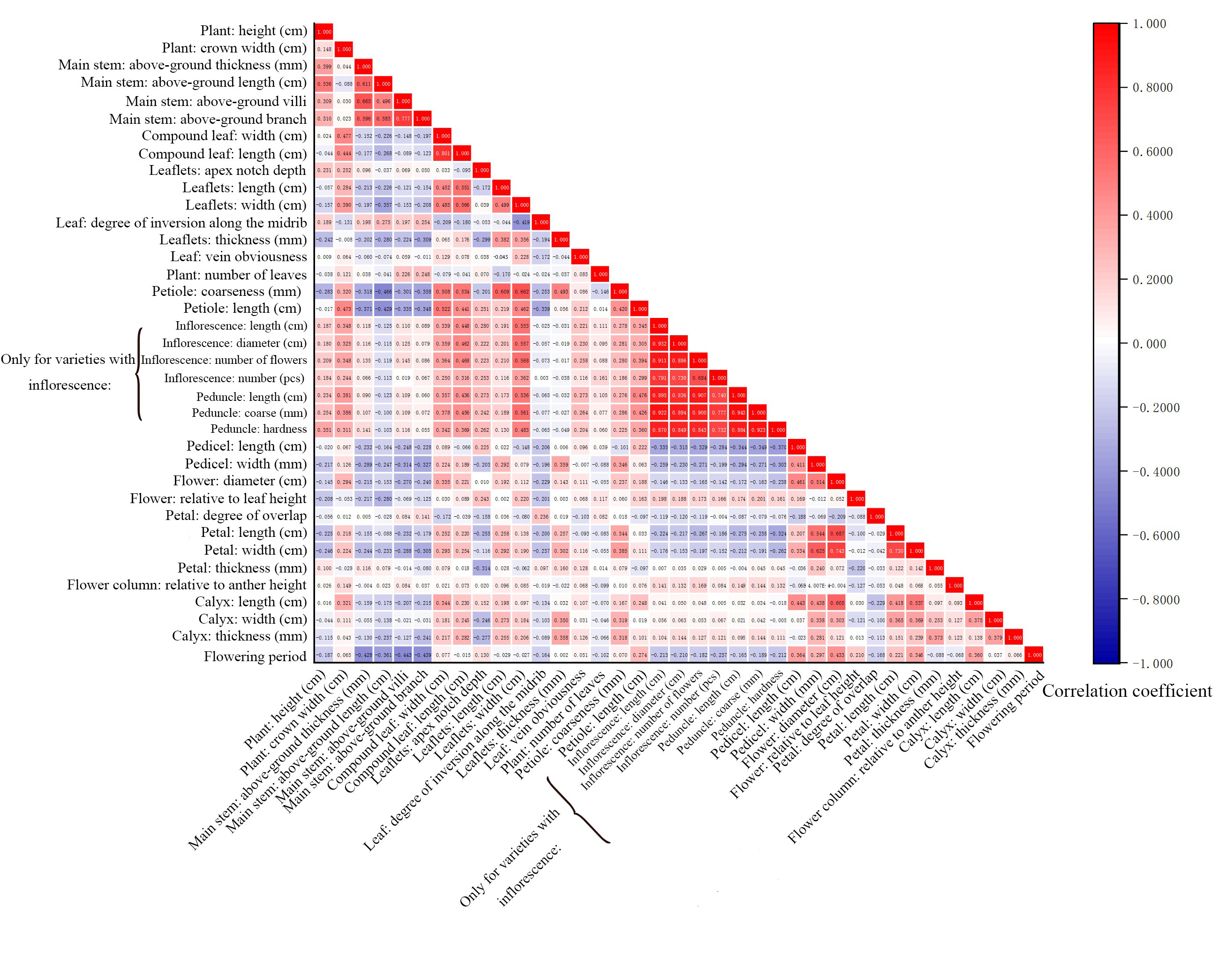
Note: ① Inflorescence length; ② Peduncle length; ③ Peduncle thickness; ④ Pedicel length; ⑤ Pedicel width;

⑥ Flower diameter; ⑦ Petals color; ⑧ Upper surface color of petals



**Fig. S3.** Analysis of partial characteristics

Note: a: Growing plants; b: Bulb size of the same variety; c: Petal spots of the same color.



**Fig. S4.** Correlation coefficient matrix of 37 quantitative characteristics

**Fig. S5.** Correlation coefficient matrix of qualitative characteristics and pseudo-qualitative characteristics