**Supplementary File**

**Germplasm Resources and Strategy for Genetic Breeding of *Lycium* species: A Review**

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**Table S2 The** **whole plant related traits**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | **Traits** | **Character** | **Description** | **Reference** |
| 1 | thorn | QL | with | (Ministry of Agriculture of China, 2013) |
|  |  |  | without |  |
| 2 | thorn density | QN | number/cm | (Ministry of Agriculture of China, 2013) |
| 3 | plant habit index | QL | erect | SGN(Fernandez-Pozo et al., 2014) & (Shi et al., 2012) |
|  |  |  | semi erect |  |
|  |  |  | decumbent |  |
|  |  |  | spreading |  |
|  |  |  | determinate |  |
|  |  |  | indeterminate |  |
|  |  |  | semi determinate |  |
| 4 | internode length | QN | cm | SGN(Fernandez-Pozo et al., 2014)&(Shi et al., 2012) & (Oguz and Erdogan, 2016) |
| 5 | plant canopy | PQ | fair canopy | SGN(Fernandez-Pozo et al., 2014) |
|  |  |  | good canopy |  |
|  |  |  | poor canopy |  |
| 6 | plant height | QN | cm | (Shi et al., 2012) &(Frary et al., 2003) |
| 7 | growth vigor | PQ | weak | (Shi et al., 2012) |
|  |  |  | intermediate |  |
|  |  |  | strong |  |
| 8 | crown breath | QN | cm | (Shi et al., 2012) |
| 9 | crown height | QN | cm | (Shi et al., 2012) |
| 10 | trunk color | QL | greyish brown | (Shi et al., 2012) |
|  |  |  | reddish brown |  |
|  |  |  | brown |  |
|  |  |  |  |  |
| 11 | thorn color | QL | off white | (Shi et al., 2012) |
|  |  |  | yellowish brown |  |
|  |  |  | dark brown |  |
| 12 | thorn length | QN | cm | (Shi et al., 2012) |
| 13 | firmness of thorn | QL | soft | (Shi et al., 2012) |
|  |  |  | intermediate |  |
|  |  |  | hard |  |
| 14 | color of annual branches | QL | off white | (Shi et al., 2012) |
|  |  |  | yellowish brown |  |
|  |  |  | reddish brown |  |
| 15 | color of perennial branches |  | greyish brown | (State Forestry Administration of China, 2013) |
|  |  |  | yellowish brown |  |
|  |  |  | brown |  |
|  |  |  | dark brown |  |
| 16 | Shoot growth rate | QN | cm/d | (Shi et al., 2012) |
| 17 | branch rigidity | PQ | extremely soft | (Shi et al., 2012) |
|  |  |  | soft |  |
|  |  |  | intermediate |  |
|  |  |  | hard |  |
|  |  |  | extremely soft |  |
| 18 | ratio of one year old branch with fruits | PQ | % | (Shi et al., 2012) |
| 19 | ratio of annual branch with fruits | PQ | % | (Shi et al., 2012) |
| 20 | trunk diameter | QN | mm | (Gong et al., 2019) |
| 21 | shoot size | QN | cm | (Oguz and Erdogan, 2016) |
| 22 | stem diameter | QN | cm | (Oguz and Erdogan, 2016) |
| 23 | branching ability | PQ | extremely weak | (Shi et al., 2012) |
|  |  |  | weak |  |
|  |  |  | intermediate |  |
|  |  |  | strong |  |
|  |  |  | extremely strong |  |
| 24 | root number | QN |  | (Wang et al., 2020) |
| 25 | root length | QN | cm | (Wang et al., 2020) |
| 26 | root diameter | QN | cm | (Wang et al., 2020) |
| 27 | daily growth of new shoots | PQ | cm/d | (Wei et al., 2008) |
| 28 | percentage of drop fruit | QN | % | (Wei et al., 2008) |
| 29 | internode length | QN | cm | (Wei et al., 2008) |
| 30 | the length of bearing shoots | QN | cm | (Qi et al., 2019) |

Abbreviation: QN, quantitative characteristics; QL, qualitative characteristics; PQ, pseudo-qualitative characteristics.

**Table S3 Candidate resistance traits for QTL mapping**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Traits** | **Character** | | **Description** | **Reference** |
| 1 | disease and stress response | | QL | disease resistance | SGN(Fernandez-Pozo et al., 2014) |
|  |  | |  | necrosis |  |
|  |  | |  | wilting |  |
| 2 | Resistance to black fruit (Colletotrichum gloeosporioides Penz) | | PQ | resist | (Shi et al., 2012) |
|  |  | |  | medium |  |
|  |  | |  | susceptible |  |
| 3 | Resistance to Mulberry powdery mildew | | PQ | resist | (Bai et al., 2008) |
|  |  | |  | medium |  |
|  |  | |  | susceptible |  |
| 4 | Resistance to root rot | | PQ | resist | (Cao et al., 1999) |
|  |  | |  | medium |  |
|  |  | |  | susceptible |  |
| 5 | salt stress resistance | | QL |  | (Wu et al., 2015) |
| 6 | Resistance to Arphis | | QL |  | (Xu et al., 2013) |
| 7 | resistance to Paratrioza sinica Yang&Li | | QL |  | (Xu et al., 2013) |
| 8 | resistane to Aceria macrodonis Keifer | | QL |  | (Lin, 2016) |
| 9 | resistance to aceric macrodonis | | QL |  | (Xu et al., 2013) |
| 10 | resistance to jaapiella | | QL |  | (Xu et al., 2013) |
| 11 | resistance to lema decempunctata | | PQ | resistance | (Jin et al., 2016) |
|  |  | |  | medium resistance |  |
|  |  | |  | medium susceptible |  |
|  |  | |  | susceptible |  |

Abbreviation: QN, quantitative characteristics; QL, qualitative characteristics; PQ, pseudo-qualitative characteristics.

**Table S4 Candidate Phenology traits for QTL mapping**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Traits** | **character** | **Description** | | **reference** |
| 1 | date of bud appear | QN | | D/M/Y | (State Forestry Administration of China, 2013) |
| 2 | date of bud blooming in autumn | QN | | D/M/Y | (Shi et al., 2012) |
| 3 | date of bud bursting | QN | | D/M/Y | (Shi et al., 2012) |
| 4 | date of ending bloom | QN | | D/M/Y | (Shi et al., 2012) |
| 5 | date of first blooming | QN | | D/M/Y | (Shi et al., 2012) |
| 6 | date of first fruit harvest | QN | | D/M/Y | (State Forestry Administration of China, 2013) |
| 7 | date of fruit colour turning | QN | | D/M/Y | (Shi et al., 2012) |
| 8 | date of full blooming | QN | | D/M/Y | (Shi et al., 2012) |
| 9 | date of green fruit | QN | | D/M/Y | (Shi et al., 2012) |
| 10 | date of last bloom | QN | | D/M/Y | (Shi et al., 2012) |
| 11 | date of leaf-spreading | QN | | D/M/Y | (State Forestry Administration of China, 2013) |
| 12 | date of planting to field | QN | | D/M/Y | (Shi et al., 2012) |
| 13 | date of sowing | QN | | D/M/Y | (Shi et al., 2012) |
| 14 | Days to flowering | QN | | day | (Frary et al., 2003) |
| 15 | days to fruit ripening | QN | | day | (Li et al., 2015) |
| 16 | duration of flowering | QN | | day | (Nurullayeva et al., 2021) |
| 17 | duration of fruit ripening | QN | | day | (Nurullayeva et al., 2021) |
| 18 | flowering cycle | QN | | day | (Nurullayeva et al., 2021) |
| 19 | frutescence | QN | | D/M/Y | (Shi et al., 2012) |
| 20 | Fruit calyx size | PQ | | very short | (Frary et al., 2003) |
|  |  |  | | short |  |
|  |  |  | | intermediate |  |
|  |  |  | | long |  |
|  |  |  | | very long |  |
| 21 | fruit ripening time | QN | | days from anthesis to ripening | SGN(Fernandez-Pozo et al., 2014) &(Doganlar et al., 2000) |
| 22 | fruit ripening time | QN | | early ripe | SGN(Fernandez-Pozo et al., 2014) |
|  |  |  | | late ripe |  |
| 23 | ripening quantitative change | QN | |  | (Nurullayeva et al., 2021) |
| 24 | ripening time | QN | | D/M/Y | (Nurullayeva et al., 2021) |
| 25 | the first fruit ripening time | QN | | D/M/Y | (Ruangrak et al., 2019) |

Abbreviation: QN, quantitative characteristics; QL, qualitative characteristics; PQ, pseudo-qualitative characteristics.

**Table S5. Fruit related traits and their references**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Traits** | **Character** | **Description** | **Reference** |
| 1 | 100 pod weight |  | g | (Qi et al., 2019) |
| 2 | Antioxidant Activity | QN |  | (Yao et al., 2018a) |
| 3 | Circular | QN |  | (Nankar et al., 2020) |
| 4 | colour index | QN |  | (López Camelo and Gómez, 2004) |
| 5 | Curved height | QN | mm | (Nankar et al., 2020) |
| 6 | distal angle macro 10% | QN |  | (Rodríguez et al., 2010) |
| 7 | distal angle macro 15% | QN |  | (Rodríguez et al., 2010) |
| 8 | distal angle macro 20% | QN |  | (Rodríguez et al., 2010) |
| 9 | distal angle macro 25% | QN |  | (Rodríguez et al., 2010) |
| 10 | distal angle micro 2% | QN |  | (Rodríguez et al., 2010) |
| 11 | distal angle micro 3% | QN |  | (Rodríguez et al., 2010) |
| 12 | distal angle micro 5% | QN |  | (Rodríguez et al., 2010) |
| 13 | Distal eccentricity | QN |  | (Nankar et al., 2020) |
| 14 | distal eccentricity index | QN |  | (Maria et al., 2009) |
| 15 | Distal fruit blockiness | QN |  | (Nankar et al., 2020) |
| 16 | distal fruit end blockiness 10% | QN |  | (Rodríguez et al., 2010) |
| 17 | distal fruit end blockiness 20% | QN |  | (Rodríguez et al., 2010) |
| 18 | distal fruit end blockiness 30% | QN |  | (Rodríguez et al., 2010) |
| 19 | distal fruit end blockiness 5% | QN |  | (Rodríguez et al., 2010) |
| 20 | distal fruit end color (abL value) | QN | average 'a' value | SGN(Fernandez-Pozo et al., 2014) &(Rodríguez et al., 2010) |
|  |  |  | average 'b' value |  |
|  |  |  | average L value |  |
| 21 | distal fruit end color(RGB value) | QN | average RGB blue | SGN(Fernandez-Pozo et al., 2014) & (Rodríguez et al., 2010) |
|  |  |  | average RGB green |  |
|  |  |  | average RGB red |  |
| 22 | distal fruit end shape | QL | indentation | SGN(Fernandez-Pozo et al., 2014) |
|  |  |  | protrusion |  |
| 23 | distance of fruit setting | QN | cm | (Shi et al., 2012) |
| 24 | Eccentricity | QN |  | (Nankar et al., 2020) |
| 25 | eccentricity area index | QN |  | (Maria et al., 2009) |
| 26 | Eccentricity area index | QN |  | (Nankar et al., 2020) |
| 27 | Ellipsoid | QN |  | (Nankar et al., 2020) |
| 28 | endocarp cross section color | QN | average chroma | SGN(Fernandez-Pozo et al., 2014) & (Tilahun et al., 2018) & (López Camelo and Gómez, 2004) |
| 29 | endocarp cross section color | QN | average hue | SGN(Fernandez-Pozo et al., 2014) & (López Camelo and Gómez, 2004) & (Sanjaya et al., 2019) |
| 30 | endocarp cross section color | QN | average luminosity | SGN(Fernandez-Pozo et al., 2014) & (Pieczywek et al., 2018) |
| 31 | endocarp cross section color (abL value) | QN | average 'a' value | SGN(Fernandez-Pozo et al., 2014) &(Rodríguez et al., 2010) |
|  |  |  | average 'b' value |  |
|  |  |  | average 'L' value |  |
| 33 | endocarp cross section color (RGB value) | QN | average RGB blue | SGN(Fernandez-Pozo et al., 2014) &(Rodríguez et al., 2010) |
|  |  |  | average RGB green |  |
|  |  |  | average RGB red |  |
| 34 | endocarp external color | QN | chroma | SGN(Fernandez-Pozo et al., 2014) &(Rodríguez et al., 2010) &(Li et al., 2015) |
| 35 | endocarp external color | QN | hue | SGN(Fernandez-Pozo et al., 2014) &(Rodríguez et al., 2010) & (Li et al., 2015) |
| 36 | endocarp external color | QN | luminosity | SGN(Fernandez-Pozo et al., 2014) &(Rodríguez et al., 2010) &(Li et al., 2015) |
| 37 | endocarp longitudinal section color | QN | chroma | SGN(Fernandez-Pozo et al., 2014) & (Rodríguez et al., 2010) &(Li et al., 2015) |
| 38 | endocarp longitudinal section color | QN | hue | SGN(Fernandez-Pozo et al., 2014) &(Rodríguez et al., 2010) &(Li et al., 2015) |
| 39 | endocarp longitudinal section color | QN | luminosity | SGN(Fernandez-Pozo et al., 2014) &(Rodríguez et al., 2010) &(Li et al., 2015) |
| 40 | endocarp longitudinal section colour (abl value) | QN | average 'a' value | SGN(Fernandez-Pozo et al., 2014) &(Rodríguez et al., 2010) &(Li et al., 2015) |
|  |  |  | average 'b' value |  |
|  |  |  | average 'L' value |  |
| 41 | endocarp longitudinal section color (RGB value) | QN | average RGB blue | SGN(Fernandez-Pozo et al., 2014) & (Rodríguez et al., 2010) &(Li et al., 2015) |
|  |  |  | average RGB green |  |
|  |  |  | average RGB red |  |
| 42 | external color uniformity | QN | percent red % | SGN(Fernandez-Pozo et al., 2014) & (Brewer et al., 2008) |
|  |  |  | percent yellow % | SGN(Fernandez-Pozo et al., 2014) &(Brewer et al., 2008) |
| 43 | first inflorescence length | QN | cm | (Shi et al., 2012) |
| 44 | flesh thickness | QN | cm | (Ministry of Agriculture of China, 2013) |
| 45 | fruit area |  | cm2 | (Brewer et al., 2006) |
| 46 | Fruit brush length | QN | cm |  |
| 47 | Fruit color | QL | yellow | (Ministry of Agriculture of China, 2013) |
|  |  |  | red |  |
|  |  |  | black |  |
| 48 | Fruit color | QN |  | (Ali et al., 2010) |
| 49 | fruit external color (abL value) |  | average 'a' value | SGN(Fernandez-Pozo et al., 2014) & (Weingerl and Unuk, 2015) |
|  |  |  | average 'b' value |  |
|  |  |  | average 'L' value |  |
| 50 | fruit external colour (RGB value) | QN | average RGB blue | SGN(Fernandez-Pozo et al., 2014) &(Gautier et al., 2005) |
|  |  |  | average RGB green |  |
|  |  |  | average RGB red |  |
| 51 | fruit firmness | QN | N | (Hernández-Pérez et al., 2020) |
| 52 | fruit glossiness | QN | dull epidermis | (Frary et al., 2003) |
|  |  |  | intermediate glossy |  |
|  |  |  | glossy epidermis |  |
| 53 | Fruit length | QN | cm | (Rehman et al., 2020) & (Ministry of Agriculture of China, 2013) |
| 54 | fruit lobedness degree | QN |  | (Maria et al., 2009) |
| 55 | fruit locule number | QN |  | SGN(Fernandez-Pozo et al., 2014) & (Maria et al., 2009) |
| 56 | fruit maximum height | QN | cm | (Mazzucato et al., 2010) |
| 57 | fruit maximum width | QN | cm | (Mazzucato et al., 2010) |
| 58 | fruit number in bud eye | QN |  | (Shi et al., 2012) |
| 59 | fruit placenta color (abL value) | QN | average 'a' value | SGN(Fernandez-Pozo et al., 2014) & (Weingerl and Unuk, 2015) |
|  |  |  | average 'b' value |  |
|  |  |  | average 'L' value |  |
| 60 | fruit placenta color (RGB value) | QN | average RGB blue | SGN(Fernandez-Pozo et al., 2014) &(Gautier et al., 2005) |
|  |  |  | average RGB green |  |
|  |  |  | average RGB red |  |
| 61 | fruit section area | QN | cm2 | (Mazzucato et al., 2010) |
| 62 | fruit setting | QN |  | (Javaria et al., 2012) & (Solaiman and Rabbani, 2006) |
| 63 | Fruit setting rate of self-pollination | QN | % | (Shi et al., 2012) |
| 64 | Fruit shape | PQ | Long elliptical | (Ministry of Agriculture of China, 2013) & (Mazzucato et al., 2010) |
|  |  |  | Moderately elliptic |  |
|  |  |  | globular |  |
|  |  |  | Flat spherical |  |
|  |  |  | Globose Obovoid |  |
| 65 | Fruit shape index | QN |  | (Rehman et al., 2020) & (Qi et al., 2019) &(Mazzucato et al., 2010) |
| 66 | Fruit shape index internal | QN |  | (Nankar et al., 2020) |
| 67 | fruit shape triangle | QN |  | (Mazzucato et al., 2010) &(Nankar et al., 2020) |
| 68 | fruit shape triangle 10% | QN |  | (Gonzalo and van der Knaap, 2008) |
| 69 | fruit shape triangle 20% | QN |  | (Gonzalo and van der Knaap, 2008) |
| 70 | fruit shape triangle 30% | QN |  | (Gonzalo and van der Knaap, 2008) |
| 71 | fruit shape triangle 5% | QN |  | (Gonzalo and van der Knaap, 2008) |
| 72 | fruit stalk length | QN | cm | (Ministry of Agriculture of China, 2013) |
| 73 | Fruit weight | QN | g | (Rehman et al., 2020) &(Ministry of Agriculture of China, 2013) |
| 74 | Fruit width | QN | cm | (Rehman et al., 2020) &(Ministry of Agriculture of China, 2013) |
| 75 | fruit yield per plant | QN | kg | (Shi et al., 2012) |
| 76 | heart shape | QN |  | (Gonzalo and van der Knaap, 2008) |
| 77 | Height mid-width | QN | mm | (Nankar et al., 2020) |
| 78 | Hydrolyzed Sugars | QN | % | (Yao et al., 2018a) |
| 79 | internal color uniformity cross section | QN | percent red % | SGN(Fernandez-Pozo et al., 2014) & (Gharezi and Gharezi, 2012) |
|  |  |  | percent yellow % | SGN(Fernandez-Pozo et al., 2014) & (Gharezi and Gharezi, 2012) |
| 80 | internal color uniformity longitudinal section | QN | percent red % | SGN(Fernandez-Pozo et al., 2014) &(Gharezi and Gharezi, 2012) |
|  |  |  | percent yellow % |  |
| 81 | internal eccentricity | QN |  | (Maria et al., 2009) |
| 82 | Lobedness Degree | QN |  | (Nankar et al., 2020) |
| 83 | locule number | QN |  | SGN(Fernandez-Pozo et al., 2014) |
| 84 | mesocarp cross section color | QN | chroma | (Mendes et al., 2020) |
| 85 | mesocarp cross section color | QN | hue | (Carrillo-López and Yahia, 2014) |
| 86 | mesocarp cross section color | QN | luminosity | (Constantino et al., 2021) |
| 87 | mesocarp cross section color （abL value） | QN | average 'a' value | (Carrillo-López and Yahia, 2014) |
|  |  |  | average 'b' value |  |
|  |  |  | average 'L' value |  |
| 88 | mesocarp cross section color （RGB value） | QN | average RGB blue | (Li et al., 2015) |
|  |  |  | average RGB green |  |
|  |  |  | average RGB red |  |
| 89 | mesocarp cross section color uniformity | QN | percent red % | (Rodríguez et al., 2010) &(Pestorić et al., 2021) |
|  |  |  | percent yellow % |  |
| 90 | number of fruits per end cluster | QN | Fruits/end cluster | (Rehman et al., 2020) |
| 91 | Number of fruits per nod | QN | Fruits/nod | (Rehman et al., 2020) |
| 92 | Number of seed per fruit | QN | seeds/fruit | (Ministry of Agriculture of China, 2013) |
| 93 | percentage of drop | QN | % | (Shi et al., 2012) |
| 94 | pericarp area | QN | cm2 | (Maria et al., 2009) |
| 95 | Pericarp thickness | QN | cm | (Li et al., 2018) |
| 96 | Perimeter | QN | mm | (Nankar et al., 2020) |
| 97 | placenta area | QN | mm | (Maria et al., 2009) |
| 98 | placenta color chroma | QN |  | SGN(Fernandez-Pozo et al., 2014) &(Rodríguez et al., 2010) & (Li et al., 2015) |
| 99 | placenta color hue | QN |  | SGN(Fernandez-Pozo et al., 2014) &(Rodríguez et al., 2010) &(Li et al., 2015) |
| 100 | placenta color luminosity | QN |  | SGN(Fernandez-Pozo et al., 2014) &(Rodríguez et al., 2010) &(Li et al., 2015) |
| 101 | placenta color uniformity | QN | percent red % | (Brewer et al., 2008) |
|  |  |  | percent yellow % |  |
| 102 | proximal angle macro 20% | QN |  | (Rodríguez et al., 2010) |
| 103 | proximal angle micro 2% | QN |  | (Rodríguez et al., 2010) |
| 104 | Proximal eccentricity | QN |  | (Nankar et al., 2020) |
| 105 | proximal eccentricity index | QN |  | (Panthee et al., 2013) |
| 106 | Proximal fruit blockiness | QN |  | (Nankar et al., 2020) |
| 107 | proximal fruit color chroma | QN |  | (Mendes et al., 2020) |
| 108 | proximal fruit color hue | QN |  | (Carrillo-López and Yahia, 2014) |
| 109 | proximal fruit color luminosity | QN |  | (Constantino et al., 2021) |
| 110 | proximal fruit color uniformity | QN | percent red % | (Brewer et al., 2008) |
|  |  |  | percent yellow % |  |
| 111 | proximal fruit end blockiness 10% | QN |  | (Rodríguez et al., 2010) |
| 112 | proximal fruit end blockiness 20% | QN |  | (Rodríguez et al., 2010) |
| 113 | proximal fruit end blockiness 30% | QN |  | (Rodríguez et al., 2010) |
| 114 | proximal fruit end blockiness 5% | QN |  | (Rodríguez et al., 2010) |
| 115 | proximal fruit end color | QN |  |  |
| 116 | proximal fruit end color(abL value) | QN | average 'a' value | SGN(Fernandez-Pozo et al., 2014)&(Rodríguez et al., 2010) |
|  |  |  | average 'b' value |  |
|  |  |  | average 'L' value |  |
| 117 | proximal fruit end color (RGB value) | QN | average RGB blue | SGN(Fernandez-Pozo et al., 2014) & (Rodríguez et al., 2010) |
|  |  |  | average RGB green |  |
|  |  |  | average RGB red |  |
| 118 | proximal fruit end height | QN |  | (Maria et al., 2009) |
| 119 | proximal fruit end blockiness shape | QL | very sharp |  |
|  |  |  | sharp |  |
|  |  |  | elliptical |  |
|  |  |  | dull |  |
|  |  |  | sunken |  |
| 120 | Rectangular |  |  | (Nankar et al., 2020) |
| 121 | Sensory evaluation | QN | Odor | (Belović et al., 2012) |
|  |  |  | Off-odor |  |
|  |  |  | Sour taste |  |
|  |  |  | Sweet taste |  |
|  |  |  | Off-taste |  |
|  |  |  | Flavor |  |
|  |  |  | After taste |  |
| 122 | septum area | QN |  | (Maria et al., 2009) |
| 123 | shape index internal | QN |  | (Maria et al., 2009) |
| 124 | simultaneity of fruit ripening | QN | [asynchronous](file:///C:\Users\GHG\AppData\Local\youdao\dict\Application\8.9.9.0\resultui\html\index.html#javascript:;) | (Shi et al., 2012) |
|  |  |  | intermediate |  |
|  |  |  | simultaneous |  |
| 125 | Single fruit weight | QN | g | (Qi et al., 2019) |
| 126 | Texture in mouth | QN | Skin chewiness | (Belović et al., 2012) |
|  |  |  | Firmness |  |
|  |  |  | Solubility |  |
|  |  |  | Juiciness |  |
|  |  |  | Chewiness |  |
|  |  |  | Mealiness |  |
|  |  |  | Covering |  |
| 127 | transect diameter of the fruits | QN | mm | (Qi et al., 2019) |
| 128 | vertical diameter of the fruits | QN | mm | (Qi et al., 2019) |
| 129 | Width mid-height | QN | mm | (Nankar et al., 2020) |

Abbreviation: QN, quantitative characteristics; QL, qualitative characteristics; PQ, pseudo-qualitative characteristics.

**Table S6. leaf related traits**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Traits** | **Character** | **Description** | | **Reference** | |
| 1 | Chlorophyll content | QN |  | | (Wang et al., 2020) | |
| 2 | condition of leaf surface | QL | positive winding | | (Shi et al., 2012) | |
|  |  |  | reverse winding | |  | |
|  |  |  | exlanate | |  | |
| 3 | diameter of subcylindric leaves | QN | mm | | (Qi et al., 2019) | |
| 4 | gloss of leaf surface | QL | with | | (Shi et al., 2012) | |
|  |  |  | without | |  | |
| 5 | Green degree of leaf | QL | light | | (Ministry of Agriculture of China, 2013) | |
|  |  |  | intermediate | |  | |
|  |  |  | dark | |  | |
| 6 | intercellular CO2 concentration | QN | μmol·mol-1 | | (Gong et al., 2019) | |
| 7 | leaf color | QL | brown green | | SGN(Fernandez-Pozo et al., 2014) | |
|  |  |  | dark green | |  | |
|  |  |  | dull green/grey | |  | |
|  |  |  | variegation | |  | |
|  |  |  | purple | |  | |
|  |  |  | white | |  | |
|  |  |  | yellow | |  | |
|  |  |  | virescent | |  | |
| 8 | leaf length | QN | cm | | (Ministry of Agriculture of China, 2013) & (Ministry of Agriculture of China, 2013) & (Wei et al., 2008) | |
| 9 | Leaf lobing | PQ | very weak lobing | | (Frary et al., 2003) | |
|  |  |  | weak lobing | |  | |
|  |  |  | intermediate | |  | |
|  |  |  | strong lobing | |  | |
|  |  |  | very strong lobing | |  | |
| 10 | leaf shape | PQ | Strip shape | | (Ministry of Agriculture of China, 2013) | |
|  |  |  | strip Lanceolate | |  | |
|  |  |  | Wide lanceolate | |  | |
|  |  |  | elliptic-lanceolate | |  | |
|  |  |  | ovate | |  | |
| 11 | Leaf shape index | QN |  | | (Rehman et al., 2020) &(Frary et al., 2003) | |
| 12 | Leaf shape index of oblanceolate leaves | QN |  | | (Qi et al., 2019) | |
| 13 | leaf stalk length | QN | cm | | (Wei et al., 2008) | |
| 14 | Leaf surface appearance | PQ | smooth | | (Frary et al., 2003) | |
|  |  |  | intermediate rugose | |  | |
|  |  |  | rugose | |  | |
|  |  |  | intermediate wrinkled | |  | |
|  |  |  | strongly wrinkled | |  | |
| 15 | leaf thickness | QN | mm | (Shi et al., 2012) & (Wei et al., 2008) | |
| 16 | leaf width | QN | cm | | (Ministry of Agriculture of China, 2013) &(Wei et al., 2008) & (Frary et al., 2003) | |
| 17 | length of oblanceolate leaves | QN | cm | | (Qi et al., 2019) | |
| 18 | length of subcylindric leaves | QN | cm | | (Qi et al., 2019) | |
| 19 | limiting value of the stoma | QN |  | | (Gong et al., 2019) | |
| 20 | Net photosynthetic rate | QN | CO2μmol·m-2·S-1 | | (Gong et al., 2019) | |
| 21 | number of leaf clusters within 10 cm of the bearing shoots | QN |  | | (Qi et al., 2019) | |
| 22 | number of leaves to 1st inflorescence | QN |  | | SGN(Fernandez-Pozo et al., 2014) | |
| 23 | petiole length | QN | cm | | (Ministry of Agriculture of China, 2013) | |
| 24 | phyllotaxy | QL | opposite | | (Shi et al., 2012) | |
|  |  |  | alternate | |  | |
| 25 | shape of leaf apex | QL | acutus | | (Shi et al., 2012) | |
|  |  |  | Taper | |  | |
|  |  |  | Blunt round | |  | |
| 26 | Stomatal area | QN | μm2 | | (Wang et al., 2020) | |
| 27 | stomatal conductance | QN | H2Omol .m-2.s-1 | | (Gong et al., 2019) | |
| 28 | Stomatal density | QN | stomatal number/mm2 | | (Wang et al., 2020) | |
| 29 | Stomatal length | QN | μm | | (Wang et al., 2020) | |
| 30 | Stomatal width | QN | μm | | (Wang et al., 2020) | |
| 31 | transpiration rate | QN | H2Ommol·m-2·s-1 | | (Gong et al., 2019) | |
| 32 | water use efficiency | QN | H2Ommol·m-2·s-1 | | (Gong et al., 2019) | |
| 33 | width of oblanceolate leaves | QN | mm | | (Qi et al., 2019) | |

Abbreviation: QN, quantitative characteristics; QL, qualitative characteristics; PQ, pseudo-qualitative characteristics.

**Table S7. Flower related traits**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Traits** | **Character** | **Description** | **Reference** |
| 1 | color of corolla | QL | white | (Ministry of Agriculture of China, 2013) |
|  |  |  | violet |  |
|  |  |  | purple |  |
| 2 | corolla shape | QL | cannular | (Shi et al., 2012) |
|  |  |  | infundibuliform |  |
| 3 | echinoid density in corolla lobe | QN | none | (State Forestry Administration of China, 2013) |
|  |  |  | rare |  |
|  |  |  | thick |  |
| 4 | female sterile | QL | full sterility | SGN(Fernandez-Pozo et al., 2014) |
|  |  |  | partial sterility |  |
|  |  |  | fertility |  |
| 5 | first inflorescence length | QN | cm | (Wei et al., 2008) |
| 6 | flower diameter | QN | cm | (Wei et al., 2008)&(Frary et al., 2003) |
| 7 | flower number per nod | QN | flower/nod | Same with number of fruits per node in (Rehman et al., 2020) |
| 8 | flower terminal | QL | Yes |  |
|  |  |  | No |  |
| 9 | flower terminal rate | QN | % | Percentage of flower terminal branches in a plant |
| 10 | inflorescence | QL | solitary | (Shi et al., 2012) |
|  |  |  | fascicle |  |
| 11 | length of corolla | QN | cm | (Shi et al., 2012) |
| 12 | length of stigma exertion |  | cm | (Chen and Tanksley, 2004) |
| 13 | male sterile | QL | full sterility | SGN(Fernandez-Pozo et al., 2014) |
|  |  |  | partial sterility |  |
|  |  |  | fertility |  |
| 14 | number of flowers | QL |  | (Nurullayeva et al., 2021) |
| 15 | ovary length | QL | cm | (Chen and Tanksley, 2004) |
| 16 | petal diameter | QN | cm | (Ministry of Agriculture of China, 2013) |
| 17 | petal front shape | PQ | sharp | (Ministry of Agriculture of China, 2013) |
|  |  |  | medium sharp |  |
|  |  |  | globular |  |
| 18 | petal number per flower | QN | number/flower |  |
| 19 | pistil length | QN | cm | (Chen and Tanksley, 2004) |
| 20 | Pollen Vitality | QN | % | (Schubert et al., 2019) |
| 21 | sepal length | QN | cm | (State Forestry Administration of China, 2013) |
| 22 | sepal number per flower | QN |  | (State Forestry Administration of China, 2013) |
| 23 | Sepal shape | PQ | triangular | (State Forestry Administration of China, 2013) |
|  |  |  | ovate |  |
|  |  |  | Broadly ovate, |  |
| 24 | stamen length | QN | cm | (Chen and Tanksley, 2004) |
| 25 | style length | QN | cm | (Chen and Tanksley, 2004) |
| 26 | The length of peduncles | QN | mm | (Qi et al., 2019) |
| 27 | Water Content of Stamen | QN | % | (Schubert et al., 2019) |

Abbreviation: QN, quantitative characteristics; QL, qualitative characteristics; PQ, pseudo-qualitative characteristics.

**Table S8 Candidate trait for seed related trait QTL**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Trait** | **Character** | **Description** | **reference** |
| 1 | 100 seed weight | QL | g | (Rehman et al., 2020) |
| 2 | 1000 seed weight |  | g | (Shi et al., 2012) |
| 3 | full abortive rate of seed | QN | % | (Shi et al., 2012) |
| 4 | number of seed per fruit | QN | number/fruit | (Rehman et al., 2020) |
| 5 | seed colour | QL | yellow | (Shi et al., 2012) |
|  |  |  | light yellow |  |
|  |  |  | Brown yellow |  |
| 6 | seed germination |  | % | (Nurullayeva et al., 2021) |
| 7 | seed shape | QL | kidney-shaped | (Shi et al., 2012) |
|  |  |  | rounded |  |
|  |  |  | ovate |  |
| 8 | seed vigour index | QN |  | (Sharma, 2012) |

Abbreviation: QN, quantitative characteristics; QL, qualitative characteristics; PQ, pseudo-qualitative characteristics.

**Table S9. Candidate traits for metabolic QTL**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Classification** | **Traits** | **organ** | **property** | | **Description** | **reference** |
| 1 | Biogenic amines | cadaverine | bark | AC | mg/kg | | (Ai et al., 2021) |
| 2 | Biogenic amines | histamine | bark | AC | mg/kg | | (Ai et al., 2021) |
| 3 | Biogenic amines | methylamine | bark | AC | mg/kg | | (Ai et al., 2021) |
| 4 | Biogenic amines | phenyl ethylamine | bark | AC | mg/kg | | (Ai et al., 2021) |
| 5 | Biogenic amines | putrescine | bark | AC | mg/kg | | (Ai et al., 2021) |
| 6 | Biogenic amines | spermidine | bark | AC | mg/kg | | (Ai et al., 2021) |
| 7 | Biogenic amines | spermine | bark | AC | mg/kg | | (Ai et al., 2021) |
| 8 | Biogenic amines | tryptamine | bark | AC | mg/kg | | (Ai et al., 2021) |
| 9 | Biogenic amines | tyramine | bark | AC | mg/kg | | (Ai et al., 2021) |
| 10 | Anthraquinone | Kukoamines A | dry root | AC | mg/g | | (Li et al., 2017) |
| 11 | Anthraquinone | Kukoamines B | dry root | AC | mg/g | | (Li et al., 2017) |
| 12 | Biogenic amines | cadaverine | Flower | AC | mg/kg | | (Ai et al., 2021) |
| 13 | Biogenic amines | histamine | Flower | AC | mg/kg | | (Ai et al., 2021) |
| 14 | Biogenic amines | methylamine | Flower | AC | mg/kg | | (Ai et al., 2021) |
| 15 | Biogenic amines | phenyl ethylamine | Flower | AC | mg/kg | | (Ai et al., 2021) |
| 16 | Biogenic amines | putrescine | Flower | AC | mg/kg | | (Ai et al., 2021) |
| 17 | Biogenic amines | spermidine | Flower | AC | mg/kg | | (Ai et al., 2021) |
| 18 | Biogenic amines | spermine | Flower | AC | mg/kg | | (Ai et al., 2021) |
| 19 | Biogenic amines | tryptamine | Flower | AC | mg/kg | | (Ai et al., 2021) |
| 20 | Biogenic amines | tyramine | Flower | AC | mg/kg | | (Ai et al., 2021) |
| 21 | flavonoids | kaempferol | flower | AC | μg/g | | (Zhao et al., 2013) |
| 22 | flavonoids | rutin | flower | AC | μg/g | | (Zhao et al., 2013) |
| 23 | Phenylpropanoids | caffeic acid | flower | AC | μg/g | | (Zhao et al., 2013) |
| 24 | Phenylpropanoids | chlorogeic acid | flower | AC | μg/g | | (Zhao et al., 2013) |
| 25 | Phenylpropanoids | ferulic acid | flower | AC | μg/g | | (Zhao et al., 2013) |
| 26 | Phenylpropanoids | trans-cinnamic acid | flower | AC | μg/g | | (Zhao et al., 2013) |
| 27 | amino acids | Alanine | fruit | AC | mg/kg | | (Yu et al., 2017) &(Guo et al., 2015) |
| 28 | amino acids | Arginine | fruit | AC | mg/kg | | (Yu et al., 2017) |
| 29 | amino acids | asparagine | fruit | AC | mg/kg | | (Guo et al., 2015) |
| 30 | amino acids | Aspartic acid | fruit | AC | mg/kg | | (Yu et al., 2017) &(Guo et al., 2015) |
| 31 | amino acids | Cysteine | fruit | AC | mg/kg | | (Yu et al., 2017) &(Guo et al., 2015) |
| 32 | amino acids | Glutamine | fruit | AC | mg/kg | | (Yu et al., 2017) & (Guo et al., 2015) |
| 33 | amino acids | Glycine | fruit | AC | mg/kg | | (Yu et al., 2017) & (Guo et al., 2015) |
| 34 | amino acids | Histidine | fruit | AC | mg/kg | | (Yu et al., 2017) &(Guo et al., 2015) |
| 35 | amino acids | Isoleucine | fruit | AC | mg/kg | | (Yu et al., 2017) &(Guo et al., 2015) |
| 36 | amino acids | Leucine | fruit | AC | mg/kg | | (Yu et al., 2017) &(Guo et al., 2015) |
| 37 | amino acids | Lysine | fruit | AC | mg/kg | | (Yu et al., 2017) &(Guo et al., 2015) |
| 38 | amino acids | Methionine | fruit | AC | mg/kg | | (Yu et al., 2017) &(Guo et al., 2015) |
| 39 | amino acids | Phenylalanine | fruit | AC | mg/kg | | (Yu et al., 2017) &(Guo et al., 2015) |
| 40 | amino acids | Proline | fruit | AC | mg/kg | | (Yu et al., 2017) &(Guo et al., 2015) |
| 41 | amino acids | Serine | fruit | AC | mg/kg | | (Yu et al., 2017) &(Guo et al., 2015) |
| 42 | amino acids | Threonine | fruit | AC | mg/kg | | (Yu et al., 2017) &(Guo et al., 2015) |
| 43 | amino acids | tryptophan | fruit | AC | mg/kg | | (Guo et al., 2015) |
| 44 | amino acids | Tyrosine | fruit | AC | mg/kg | | (Yu et al., 2017) &(Guo et al., 2015) |
| 45 | amino acids | Valine | fruit | AC | mg/kg | | (Yu et al., 2017) &(Guo et al., 2015) |
| 46 | amono acids | glutamic acid | fruit | AC |  | | SGN (Wu et al., 2016) |
| 47 | Biogenic amines | cadaverine | fruit | AC | mg/kg | | (Ai et al., 2021) |
| 48 | Biogenic amines | histamine | fruit | AC | mg/kg | | (Ai et al., 2021) |
| 49 | Biogenic amines | methylamine | fruit | AC | mg/kg | | (Ai et al., 2021) |
| 50 | Biogenic amines | phenyl ethylamine | fruit | AC | mg/kg | | (Ai et al., 2021) |
| 51 | Biogenic amines | putrescine | fruit | AC | mg/kg | | (Ai et al., 2021) |
| 52 | Biogenic amines | spermidine | fruit | AC | mg/kg | | (Ai et al., 2021) |
| 53 | Biogenic amines | spermine | fruit | AC | mg/kg | | (Ai et al., 2021) |
| 54 | Biogenic amines | tryptamine | fruit | AC | mg/kg | | (Ai et al., 2021) |
| 55 | Biogenic amines | tyramine | fruit | AC | mg/kg | | (Ai et al., 2021) |
| 56 | Carotenoid | 13- or 13’-cis-b-carotene | fruit | AC | mg/g | | (Wang et al., 2010) |
| 57 | Carotenoid | 13- or 13’-cis-zeaxanthin | fruit | AC | mg/g | | (Wang et al., 2010) |
| 58 | Carotenoid | 15- or 15’–cis-zeaxanthin | fruit | AC | mg/g | | (Wang et al., 2010) |
| 59 | Carotenoid | 9- or 9’-cis-b-carotene | fruit | AC | mg/g | | (Wang et al., 2010) |
| 60 | Carotenoid | 9- or 9’-cis-b-cryptoxanthin | fruit | AC | mg/g | | (Wang et al., 2010) |
| 61 | Carotenoid | All-trans-b-carotene | fruit | AC | mg/g | | (Wang et al., 2010) |
| 62 | Carotenoid | All-trans-b-cryptoxanthin | fruit | AC | mg/g | | (Wang et al., 2010) |
| 63 | Carotenoid | All-trans-zeaxanthin | fruit | AC | mg/g | | (Wang et al., 2010) |
| 64 | Carotenoid | Neoxanthin | fruit | AC | mg/g | | (Wang et al., 2010) |
| 65 | Carotenoid | Total carotenoid | fruit | AC | % | | (Peng et al., 2005) |
| 66 | Carotenoid | Zeaxanthin dipalmitate | fruit | AC | % | | (Peng et al., 2005) |
| 67 | Carotenoid | Zeaxanthin fraction 9- or 9’-cis-zeaxanthin | fruit | AC | mg/g | | (Wang et al., 2010) |
| 68 | carotenoids | β-carotene | fruit | AC | μg/100g | | (Oguz and Erdogan, 2016) |
| 69 | Fatty acids | Antioxidant activity | fruit | AC | % | | (Guo et al., 2015) |
| 70 | Fatty acids | Arachidic | fruit | AC | % | | (Guo et al., 2015) |
| 71 | Fatty acids | Fibre | fruit | AC | % | | (Guo et al., 2015) |
| 72 | Fatty acids | Linoleic | fruit | AC | % | | (Guo et al., 2015) |
| 73 | Fatty acids | Linolenic | fruit | AC | % | | (Guo et al., 2015) |
| 74 | Fatty acids | Myristic | fruit | AC | % | | (Guo et al., 2015) |
| 75 | Fatty acids | Oleic | fruit | AC | % | | (Guo et al., 2015) |
| 76 | Fatty acids | Palmitic | fruit | AC | % | | (Guo et al., 2015) |
| 77 | Fatty acids | Stearic | fruit | AC | % | | (Guo et al., 2015) |
| 78 | Fatty acids | Total phenol | fruit | AC | % | | (Guo et al., 2015) |
| 79 | Flavonoid | Acidic fraction Chlorogenic acid | fruit | AC | mg/g | | (Wang et al., 2010) |
| 80 | Flavonoid | Caffeoylquinic acid | fruit | AC | mg/g | | (Wang et al., 2010) |
| 81 | Flavonoid | Kaempferol-3-O-rutinoside | fruit | AC | mg/g | | (Wang et al., 2010) |
| 82 | Flavonoid | Neutral fraction Quercetin-diglycoside | fruit | AC | mg/g | | (Wang et al., 2010) |
| 83 | Flavonoid | p-Coumaric acid | fruit | AC | mg/g | | (Wang et al., 2010) |
| 84 | Flavonoid | Rutin | fruit | AC | mg/g | | (Wang et al., 2010) |
| 85 | Flavonoids | apigenin | fruit | AC | mg/g | | (Ali et al., 2019) |
| 86 | flavonoids | flavonoid | fruit | AC | g/100g | | NY/T 2741-2015 |
| 87 | flavonoids | Flavonoid analysis | fruit | AC |  | | (Oguz and Erdogan, 2016) |
| 88 | flavonoids | kaempferol | fruit | AC | μg/g | | (Zhao et al., 2013) |
| 89 | Flavonoids | luteolin | fruit | AC | mg/g | | (Ali et al., 2019) |
| 90 | flavonoids | morin | fruit | AC | mg/g | | (Ali et al., 2019) |
| 91 | flavonoids | myricetin | fruit | AC | mg/g | | (Ali et al., 2019) |
| 92 | Flavonoids | naringenin | fruit | AC | mg/kg | | (Zhang et al., 2021) |
| 93 | flavonoids | quercitrin | fruit | AC | mg/g | | (Ali et al., 2019) |
| 94 | Flavonoids | rutin | fruit | AC | μg/g | | (Ali et al., 2019) &(Zhao et al., 2013) &(Zhang et al., 2021) |
| 95 | flavonoids | Total anthocyanin contents | Fruit | AC | mg/100g | | (Wu et al., 2016) |
| 96 | flavonoids | total flavonoids | fruit | AC | μg/100g | | GB 5009.83-2016 |
| 97 | flavonols | hyperoside | fruit | AC | mg/g | | (Ali et al., 2019) |
| 98 | lactones | P-coumaric acid | fruit | AC | mg/g | | (Ali et al., 2019) |
| 99 | oils | Raw oil analysis | fruit | AC | % | | (Endes et al., 2015) |
| 100 | organic acids | malic acid | fruit | AC | mg/100g | | SGN (Oguz and Erdogan, 2016) |
| 101 | organic acids | titratable acid | fruit | AC | % | | SGN (Song et al., 2018) |
| 102 | organic acids | Total organic acids | fruit | AC | mg/g | | SGN (Zhao et al., 2015) |
| 103 | Phenylpropanoids | Caffeic acid | fruit | AC | mg/g | | (Zhao et al., 2013) &(Wang et al., 2010) |
| 104 | Phenylpropanoids | chlorogeic acid | fruit | AC | μg/g | | (Zhao et al., 2013) |
| 105 | phenylpropanoids | chlorogenic acid | fruit | AC | mg/kg | | (Zhang et al., 2021) & (Ali et al., 2019) |
| 106 | Phenylpropanoids | ferulic acid | fruit | AC | μg/g | | (Zhang et al., 2021) &(Ali et al., 2019) &(Zhao et al., 2013) |
| 107 | phenylpropanoids | p-coumaric acid | fruit | AC | mg/kg | | (Zhang et al., 2021) |
| 108 | phenylpropanoids | protocatechuic acid | fruit | AC | mg/kg | | (Zhang et al., 2021) |
| 109 | phenylpropanoids | sinapic acid | fruit | AC | mg/kg | | (Zhang et al., 2021) |
| 110 | Phenylpropanoids | trans-cinnamic acid | fruit | AC | μg/g | | (Zhao et al., 2013) |
| 111 | polyamines | spermidine | fruit | AC | g/100g | | NY/T 2741-2015 |
| 112 | Polyphenols | Total Phenolic Content | Fruit | AC | mg/100g | | (Wu et al., 2016) |
| 113 | Polysaccharide | Acidic polysaccharides with different molecular weights. | fruit | AC | mg/g | | (Wang et al., 2010) |
| 114 | Polysaccharide | Crude extract of polysaccharide | fruit | AC | mg/g | | (Wang et al., 2010) |
| 115 | Polysaccharide | Crude polysaccharide | fruit | AC | mg/g | | (Wang et al., 2010) |
| 116 | Polysaccharide | Neutral polysaccharide | fruit | AC | mg/g | | (Wang et al., 2010) |
| 117 | proteins | Crude protein | fruit | AC | % | | (Endes et al., 2015) |
| 118 | proteins | protein content | fruit | AC | g/100g | | (Yao et al., 2018b) &(Oguz and Erdogan, 2016) |
| 119 | quaternary ammonium hydroxide | Betaine | fruit | AC | g/100g | | GB/T5009.4-2003 |
| 120 | saccharides | fructose | fruit | AC | mg/g | | (Ma et al., 2021) |
| 121 | saccharides | glucose content | fruit | AC | mg/g | | SGN (Song et al., 2018) &(Ma et al., 2021) |
| 122 | saccharides | *Lycium barbarum* Polysaccharide | fruit | AC | g/100g | | (He et al., 2012) |
| 123 | saccharides | Pectin content | fruit | AC |  | | (Oguz and Erdogan, 2016) |
| 124 | saccharides | starch | fruit | AC | mg/g | | (Ma et al., 2021) |
| 125 | saccharides | sucrose | fruit | AC | mg/g | | SGN (Ma et al., 2021) |
| 126 | saccharides | total sugar | fruit | AC | g/100g | | (Endes et al., 2015) |
| 127 | Vitamins | vitamin C | fruit | AC | g/100g | | (Oguz and Erdogan, 2016) |
| 128 | Phenolic | Total Phenolic compounds | fruit | AC |  | | (Oguz and Erdogan, 2016) |
| 129 | Aminoglycosides | jasmonoyl‐isoleucine content | in stamens and pistils | AC |  | | (Pan et al., 2019) |
| 130 | hormones | endogenous IAA content | in stamens and pistils | AC |  | | (Pan et al., 2019) |
| 131 | saccharides | fructose content | in stamens and pistils | AC |  | | (Pan et al., 2019) |
| 132 | saccharides | glucose content | in stamens and pistils | AC |  | | (Pan et al., 2019) |
| 133 | saccharides | jasmonate content | in stamens and pistils | AC |  | | (Pan et al., 2019) |
| 134 | saccharides | soluble sucrose content | in stamens and pistils | AC |  | | (Pan et al., 2019) |
| 135 | Biogenic amines | cadaverine | Leaf | AC | mg/kg | | (Ai et al., 2021) |
| 136 | Biogenic amines | histamine | Leaf | AC | mg/kg | | (Ai et al., 2021) |
| 137 | Biogenic amines | methylamine | Leaf | AC | mg/kg | | (Ai et al., 2021) |
| 138 | Biogenic amines | phenylethylamine | Leaf | AC | mg/kg | | (Ai et al., 2021) |
| 139 | Biogenic amines | putrescine | Leaf | AC | mg/kg | | (Ai et al., 2021) |
| 140 | Biogenic amines | spermidine | Leaf | AC | mg/kg | | (Ai et al., 2021) |
| 141 | Biogenic amines | spermine | Leaf | AC | mg/kg | | (Ai et al., 2021) |
| 142 | Biogenic amines | tryptamine | Leaf | AC | mg/kg | | (Ai et al., 2021) |
| 143 | Biogenic amines | tyramine | Leaf | AC | mg/kg | | (Ai et al., 2021) |
| 144 | flavonoids | isoquercitrin | leaf | AC | mg/100g | | (Zhu et al., 2017) |
| 145 | flavonoids | kaempferol | leaf | AC | μg/g | | (Zhu et al., 2017) & (Zhao et al., 2013) |
| 146 | flavonoids | rutin | leaf | AC | μg/g | | (Dong et al., 2009) &(Zhao et al., 2013) |
| 147 | flavonoids | total flavonoids | leaf | AC | mg/g | | (Dong et al., 2009) &(Zhu et al., 2017) |
| 148 | Phenylpropanoids | caffeic acid | leaf | AC | mg/100g | | (Zhao et al., 2013) &(Zhu et al., 2017) |
| 149 | Phenylpropanoids | Chlorogenic acid | leaf | AC | mg/100g | | (Zhao et al., 2013) &(Zhu et al., 2017) |
| 150 | Phenylpropanoids | cryptochlorogenic acid | leaf | AC | mg/100g | | (Zhu et al., 2017) |
| 151 | Phenylpropanoids | ferulic acid | leaf | AC | μg/g | | (Zhao et al., 2013) |
| 152 | Phenylpropanoids | isochlorogenic acid A | leaf | AC | mg/100g | | (Zhu et al., 2017) |
| 153 | Phenylpropanoids | isochlorogenic acid B | leaf | AC | mg/100g | | (Zhu et al., 2017) |
| 154 | Phenylpropanoids | isochlorogenic acid C | leaf | AC | mg/100g | | (Zhu et al., 2017) |
| 155 | Phenylpropanoids | neochlorogenic acid | leaf | AC | mg/100g | | (Zhu et al., 2017) |
| 156 | Phenylpropanoids | trans-cinnamic acid | leaf | AC | μg/g | | (Zhao et al., 2013) |
| 157 | Polyphenols | total polyphenols | leaf | AC | mg/g | | (Zhu et al., 2017) |
| 158 | saccharides | fructose | leaf | AC | mg/g | | (Ma et al., 2021) |
| 159 | saccharides | glucose content | leaf | AC | mg/g | | SGN (Ma et al., 2021) |
| 160 | saccharides | starch | leaf | AC | mg/g | | (Ma et al., 2021) |
| 161 | saccharides | sucrose | leaf | AC | mg/g | | SGN (Ma et al., 2021) |
| 162 | Biogenic amines | cadaverine | root | AC | mg/kg | | (Ai et al., 2021) |
| 163 | Biogenic amines | histamine | root | AC | mg/kg | | (Ai et al., 2021) |
| 164 | Biogenic amines | methylamine | root | AC | mg/kg | | (Ai et al., 2021) |
| 165 | Biogenic amines | phenylethylamine | root | AC | mg/kg | | (Ai et al., 2021) |
| 166 | Biogenic amines | putrescine | root | AC | mg/kg | | (Ai et al., 2021) |
| 167 | Biogenic amines | spermidine | root | AC | mg/kg | | (Ai et al., 2021) |
| 168 | Biogenic amines | spermine | root | AC | mg/kg | | (Ai et al., 2021) |
| 169 | Biogenic amines | tryptamine | root | AC | mg/kg | | (Ai et al., 2021) |
| 170 | Biogenic amines | tyramine | root | AC | mg/kg | | (Ai et al., 2021) |
| 171 | flavonoids | kaempferol | root | AC | μg/g | | (Zhao et al., 2013) |
| 172 | flavonoids | rutin | root | AC | μg/g | | (Zhao et al., 2013) |
| 173 | Phenylpropanoids | caffeic acid | root | AC | μg/g | | (Zhao et al., 2013) |
| 174 | Phenylpropanoids | chlorogeic acid | root | AC | μg/g | | (Zhao et al., 2013) |
| 175 | Phenylpropanoids | ferulic acid | root | AC | μg/g | | (Zhao et al., 2013) |
| 176 | Phenylpropanoids | trans-cinnamic acid | root | AC | μg/g | | (Zhao et al., 2013) |
| 177 | Biogenic amines | cadaverine | stems | AC | mg/kg | | (Ai et al., 2021) |
| 178 | Biogenic amines | histamine | stems | AC | mg/kg | | (Ai et al., 2021) |
| 179 | Biogenic amines | methylamine | stems | AC | mg/kg | | (Ai et al., 2021) |
| 180 | Biogenic amines | phenylethylamine | stems | AC | mg/kg | | (Ai et al., 2021) |
| 181 | Biogenic amines | putrescine | stems | AC | mg/kg | | (Ai et al., 2021) |
| 182 | Biogenic amines | spermidine | stems | AC | mg/kg | | (Ai et al., 2021) |
| 183 | Biogenic amines | spermine | stems | AC | mg/kg | | (Ai et al., 2021) |
| 184 | Biogenic amines | tryptamine | stems | AC | mg/kg | | (Ai et al., 2021) |
| 185 | Biogenic amines | tyramine | stems | AC | mg/kg | | (Ai et al., 2021) |
| 186 | flavonoids | kaempferol | stems | AC | μg/g | | (Zhao et al., 2013) |
| 187 | flavonoids | rutin | stems | AC | μg/g | | (Zhao et al., 2013) |
| 188 | Phenylpropanoids | caffeic acid | stems | AC | μg/g | | (Zhao et al., 2013) |
| 189 | Phenylpropanoids | chlorogeic acid | stems | AC | μg/g | | (Zhao et al., 2013) |
| 190 | Phenylpropanoids | ferulic acid | stems | AC | μg/g | | (Zhao et al., 2013) |
| 191 | Phenylpropanoids | trans-cinnamic acid | stems | AC | μg/g | | (Zhao et al., 2013) |
| 192 | Alcohols and polyols | 1,5-Anhydro-D-glucitol | Fruit | RC |  | | (Shi et al., 2019) |
| 193 | Alcohols and polyols | D-Arabitol | Fruit | RC |  | | (Shi et al., 2019) |
| 194 | Alcohols and polyols | D-Mannitol | Fruit | RC |  | | (Shi et al., 2019) |
| 195 | Alcohols and polyols | D-Sorbitol | Fruit | RC |  | | (Shi et al., 2019) |
| 196 | Alcohols and polyols | Dulcitol | Fruit | RC |  | | (Shi et al., 2019) |
| 197 | Alcohols and polyols | Enterodiol | Fruit | RC |  | | (Shi et al., 2019) |
| 198 | Alcohols and polyols | Pantothenol | Fruit | RC |  | | (Shi et al., 2019) |
| 199 | Alkaloids | Betaine | Fruit | RC |  | | (Shi et al., 2019) |
| 200 | Alkaloids | Camptothecin | Fruit | RC |  | | (Shi et al., 2019) |
| 201 | Alkaloids | Delphinidin-3-O-rutinoside (trans-p-coumaroyl)-5-O-glucoside | Fruit | RC |  | | (Yang et al., 2020) |
| 202 | Alkaloids | Dihydrocaffeoyl caffeoyl spermidine hexoside | Fruit | RC |  | | (Yang et al., 2020) |
| 203 | Alkaloids | Dihydrocaffeoyl caffeoyl spermidine isomer 1 | Fruit | RC |  | | (Yang et al., 2020) |
| 204 | Alkaloids | Dihydrocaffeoyl caffeoyl spermidine isomer 2 | Fruit | RC |  | | (Yang et al., 2020) |
| 205 | Alkaloids | Dihydrocaffeoyl caffeoyl spermidine isomer 3 | Fruit | RC |  | | (Yang et al., 2020) |
| 206 | Alkaloids | Dihydrocaffeoyl caffeoyl spermidine isomer 4 | Fruit | RC |  | | (Yang et al., 2020) |
| 207 | Alkaloids | Dihydrocaffeoyl caffeoyl spermidine isomer 5 | Fruit | RC |  | | (Yang et al., 2020) |
| 208 | Alkaloids | Hordenine | Fruit | RC |  | | (Shi et al., 2019) |
| 209 | Alkaloids | Isohemiphloin | Fruit | RC |  | | (Shi et al., 2019) |
| 210 | Alkaloids | Isoquinoline | Fruit | RC |  | | (Shi et al., 2019) |
| 211 | Alkaloids | Kukoamine A | Fruit | RC |  | | (Yang et al., 2020) |
| 212 | Alkaloids | Malvidin-3-O-rutinoside (trans-p-coumaroyl)-5-O-glucoside | Fruit | RC |  | | (Yang et al., 2020) |
| 213 | Alkaloids | N1,N10-dihydrocaffeoyl spermidine hexoside | Fruit | RC |  | | (Yang et al., 2020) |
| 214 | Alkaloids | N1-Caffeoyl, N10-dihydrocaffeoyl spermidine hexose | Fruit | RC |  | | (Yang et al., 2020) |
| 215 | Alkaloids | N1-Dihydrocaffeoyl, N10-caffeoyl spermidine hexose | Fruit | RC |  | | (Yang et al., 2020) |
| 216 | Alkaloids | N1-Dihydrocaffeoyl, N10-coumaroyl spermidine | Fruit | RC |  | | (Yang et al., 2020) |
| 217 | Alkaloids | N-caffeoyl, N'-dihydrocaffeoyl spermidine dihexose | Fruit | RC |  | | (Yang et al., 2020) |
| 218 | Alkaloids | Petunidin-3-O-rutinoside (cis-p-coumaroyl)-5-O-glucoside | Fruit | RC |  | | (Yang et al., 2020) |
| 219 | Alkaloids | Petunidin-3-O-rutinoside (trans-p-coumaroyl)-5-O-glucoside | Fruit | RC |  | | (Yang et al., 2020) |
| 220 | Alkaloids | Petunidin-3-O-rutinoside (feruloyl)-5-O-glucoside | Fruit | RC |  | | (Yang et al., 2020) |
| 221 | Alkaloids | Petunidin-3-O-rutinoside (glucosyl-cis-p-coumaroyl)-5-O-glucoside | Fruit | RC |  | | (Yang et al., 2020) |
| 222 | Alkaloids | Petunidin-3-O-rutinoside (p-coumaroyl)-5-O-glucoside isomer | Fruit | RC |  | | (Yang et al., 2020) |
| 223 | Alkaloids | Petunidin-3-O-rutinoside (trans-caffeoyl)-5-O-glucoside | Fruit | RC |  | | (Yang et al., 2020) |
| 224 | Alkaloids | Petunidin-3-O-rutinoside(glucosyl-trans-p-coumaroyl)-5-O-glucoside | Fruit | RC |  | | (Yang et al., 2020) |
| 225 | Alkaloids | Petunidin-3-O-rutinoside-5-O-glucoside | Fruit | RC |  | | (Yang et al., 2020) |
| 226 | Alkaloids | Piperidine | Fruit | RC |  | | (Shi et al., 2019) |
| 227 | Alkaloids | Trigonelline | Fruit | RC |  | | (Shi et al., 2019) |
| 228 | Amino acid derivatives | (-)-3-(3,4-Dihydroxyphenyl)-2-methylalanine | Fruit | RC |  | | (Shi et al., 2019) |
| 229 | Amino acid derivatives | (5-L-Glutamyl)-L-amino acid | Fruit | RC |  | | (Shi et al., 2019) |
| 230 | Amino acid derivatives | 1-Methylhistidine | Fruit | RC |  | | (Shi et al., 2019) |
| 231 | Amino acid derivatives | 2,3-dimethylsuccinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 232 | Amino acid derivatives | 2,6-Diaminooimelic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 233 | Amino acid derivatives | 2-Aminoisobutyric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 234 | Amino acid derivatives | 3-(2-Naphthyl)-D-alanine | Fruit | RC |  | | (Shi et al., 2019) |
| 235 | Amino acid derivatives | 3-(6-Hydroxy-3,4-dioxo-1,5-cyclohexadien-1-yl)-L-alanine | Fruit | RC |  | | (Shi et al., 2019) |
| 236 | Amino acid derivatives | 3,4-Dihydroxy-DL-phenylalanine | Fruit | RC |  | | (Shi et al., 2019) |
| 237 | Amino acid derivatives | 3-Hydroxy-3-methylpentane-1,5-dioic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 238 | Amino acid derivatives | 3-N-Methyl-L-histidine | Fruit | RC |  | | (Shi et al., 2019) |
| 239 | Amino acid derivatives | 4-Hydroxy-L-glutamic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 240 | Amino acid derivatives | 5-Aminovaleric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 241 | Amino acid derivatives | 5-Hydroxy-L-tryptophan | Fruit | RC |  | | (Shi et al., 2019) |
| 242 | Amino acid derivatives | 5-oxoproline | Fruit | RC |  | | (Shi et al., 2019) |
| 243 | Amino acid derivatives | Acetyl tryptophan | Fruit | RC |  | | (Shi et al., 2019) |
| 244 | Amino acid derivatives | Allysine(6-Oxo DL-Norleucine) | Fruit | RC |  | | (Shi et al., 2019) |
| 245 | Amino acid derivatives | Aspartic acid di-O-glucoside | Fruit | RC |  | | (Shi et al., 2019) |
| 246 | Amino acid derivatives | Asp-phe | Fruit | RC |  | | (Shi et al., 2019) |
| 247 | Amino acid derivatives | CYS-GLY | Fruit | RC |  | | (Shi et al., 2019) |
| 248 | Amino acid derivatives | D-Alanyl-D-Alanine | Fruit | RC |  | | (Shi et al., 2019) |
| 249 | Amino acid derivatives | Glutathione oxidized | Fruit | RC |  | | (Shi et al., 2019) |
| 250 | Amino acid derivatives | Glutathione reduced form | Fruit | RC |  | | (Shi et al., 2019) |
| 251 | Amino acid derivatives | H-HomoArg-OH | Fruit | RC |  | | (Shi et al., 2019) |
| 252 | Amino acid derivatives | Histamine | Fruit | RC |  | | (Shi et al., 2019) |
| 253 | Amino acid derivatives | L-Glutamic acid O-glucoside | Fruit | RC |  | | (Shi et al., 2019) |
| 254 | Amino acid derivatives | L-Glutamine O-hexside | Fruit | RC |  | | (Shi et al., 2019) |
| 255 | Amino acid derivatives | L-Glutaminyl-L-valyl-L-valyl-L-cysteine | Fruit | RC |  | | (Shi et al., 2019) |
| 256 | Amino acid derivatives | L-Kynurenine | Fruit | RC |  | | (Shi et al., 2019) |
| 257 | Amino acid derivatives | L-Methionine methyl ester | Fruit | RC |  | | (Shi et al., 2019) |
| 258 | Amino acid derivatives | L-Pipecolic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 259 | Amino acid derivatives | L-Saccharopine | Fruit | RC |  | | (Shi et al., 2019) |
| 260 | Amino acid derivatives | Lysine butyrate | Fruit | RC |  | | (Shi et al., 2019) |
| 261 | Amino acid derivatives | Methionine sulfoxide | Fruit | RC |  | | (Shi et al., 2019) |
| 262 | Amino acid derivatives | N-(3-Indolylacetyl)-L-alanine | Fruit | RC |  | | (Shi et al., 2019) |
| 263 | Amino acid derivatives | N,N-Dimethylglycine | Fruit | RC |  | | (Shi et al., 2019) |
| 264 | Amino acid derivatives | N6-Acetyl-L-lysine | Fruit | RC |  | | (Shi et al., 2019) |
| 265 | Amino acid derivatives | N-Acetylaspartate | Fruit | RC |  | | (Shi et al., 2019) |
| 266 | Amino acid derivatives | N-acetylglycine | Fruit | RC |  | | (Shi et al., 2019) |
| 267 | Amino acid derivatives | N-Acetyl-L-glutamic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 268 | Amino acid derivatives | N-Acetyl-l-leucine | Fruit | RC |  | | (Shi et al., 2019) |
| 269 | Amino acid derivatives | N-Acetyl-L-tyrosine | Fruit | RC |  | | (Shi et al., 2019) |
| 270 | Amino acid derivatives | N-Acetylmethionine | Fruit | RC |  | | (Shi et al., 2019) |
| 271 | Amino acid derivatives | N-Acetylthreonine | Fruit | RC |  | | (Shi et al., 2019) |
| 272 | Amino acid derivatives | N'-Formylkynurenine | Fruit | RC |  | | (Shi et al., 2019) |
| 273 | Amino acid derivatives | N-formylmethionine | Fruit | RC |  | | (Shi et al., 2019) |
| 274 | Amino acid derivatives | N-Glycyl-L-leucine | Fruit | RC |  | | (Shi et al., 2019) |
| 275 | Amino acid derivatives | N-Propionylglycine | Fruit | RC |  | | (Shi et al., 2019) |
| 276 | Amino acid derivatives | Nα-Acetyl-L-arginine | Fruit | RC |  | | (Shi et al., 2019) |
| 277 | Amino acid derivatives | Nα-Acetyl-L-glutamine | Fruit | RC |  | | (Shi et al., 2019) |
| 278 | Amino acid derivatives | N-γ-Acetyl-N-2-Formyl-5-methoxykynurenamine | Fruit | RC |  | | (Shi et al., 2019) |
| 279 | Amino acid derivatives | Phe-Phe | Fruit | RC |  | | (Shi et al., 2019) |
| 280 | Amino acid derivatives | Pyrrole-2-carboxylic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 281 | Amino acid derivatives | S-(5'-Adenosy)-L-homocysteine | Fruit | RC |  | | (Shi et al., 2019) |
| 282 | Amino acid derivatives | S-(methyl)glutathione | Fruit | RC |  | | (Shi et al., 2019) |
| 283 | Amino acids | 2-Aminoadipic acid (L-Homoglutamic acid) | Fruit | RC |  | | (Shi et al., 2019) |
| 284 | Amino acids | Acetylserine | Fruit | RC |  | | (Yang et al., 2020) |
| 285 | Amino acids | Arginine | Fruit | RC |  | | (Yang et al., 2020) |
| 286 | Amino acids | Asparagine | Fruit | RC |  | | (Yang et al., 2020) |
| 287 | Amino acids | Dl-Norvaline | Fruit | RC |  | | (Shi et al., 2019) |
| 288 | Amino acids | Histidine | Fruit | RC |  | | (Yang et al., 2020) |
| 289 | Amino acids | L-(-)-Tyrosine | Fruit | RC |  | | (Shi et al., 2019) |
| 290 | Amino acids | L-(+)-Arginine | Fruit | RC |  | | (Shi et al., 2019) |
| 291 | Amino acids | L-(+)-Lysine | Fruit | RC |  | | (Shi et al., 2019) |
| 292 | Amino acids | L(+)-Ornithine | Fruit | RC |  | | (Shi et al., 2019) |
| 293 | Amino acids | L-Alanine | Fruit | RC |  | | (Shi et al., 2019) |
| 294 | Amino acids | L-Asparagine | Fruit | RC |  | | (Shi et al., 2019) |
| 295 | Amino acids | L-Aspartic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 296 | Amino acids | L-Citrulline | Fruit | RC |  | | (Shi et al., 2019) |
| 297 | Amino acids | L-Cysteine | Fruit | RC |  | | (Shi et al., 2019) |
| 298 | Amino acids | L-Glutamic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 299 | Amino acids | L-Glutamine | Fruit | RC |  | | (Shi et al., 2019) |
| 300 | Amino acids | L-Histidine | Fruit | RC |  | | (Shi et al., 2019) |
| 301 | Amino acids | L-Homocitrulline | Fruit | RC |  | | (Shi et al., 2019) |
| 302 | Amino acids | L-Homocystine | Fruit | RC |  | | (Shi et al., 2019) |
| 303 | Amino acids | L-Homoserine | Fruit | RC |  | | (Shi et al., 2019) |
| 304 | Amino acids | L-Isoleucine | Fruit | RC |  | | (Shi et al., 2019) |
| 305 | Amino acids | L-Leucine | Fruit | RC |  | | (Shi et al., 2019) |
| 306 | Amino acids | L-Methionine | Fruit | RC |  | | (Shi et al., 2019) |
| 307 | Amino acids | L-Phenylalanine | Fruit | RC |  | | (Shi et al., 2019) |
| 308 | Amino acids | L-Proline | Fruit | RC |  | | (Shi et al., 2019) |
| 309 | Amino acids | L-Serine | Fruit | RC |  | | (Shi et al., 2019) |
| 310 | Amino acids | L-Theanine | Fruit | RC |  | | (Shi et al., 2019) |
| 311 | Amino acids | L-Threonine | Fruit | RC |  | | (Shi et al., 2019) |
| 312 | Amino acids | L-Tryptophan | Fruit | RC |  | | (Shi et al., 2019) |
| 313 | Amino acids | L-Tyramine | Fruit | RC |  | | (Shi et al., 2019) |
| 314 | Amino acids | L-Valine | Fruit | RC |  | | (Shi et al., 2019) |
| 315 | Amino acids | Norleucine isomer 1 | Fruit | RC |  | | (Yang et al., 2020) |
| 316 | Amino acids | Norleucine isomer 2 | Fruit | RC |  | | (Yang et al., 2020) |
| 317 | Amino acids | Phenylalanine | Fruit | RC |  | | (Yang et al., 2020) |
| 318 | Amino acids | Proline | Fruit | RC |  | | (Yang et al., 2020) |
| 319 | Amino acids | Tyrosine isomer1 | Fruit | RC |  | | (Yang et al., 2020) |
| 320 | Amino acids | Tyrosine isomer2 | Fruit | RC |  | | (Yang et al., 2020) |
| 321 | Amino acids | Tyrosine isomer3 | Fruit | RC |  | | (Yang et al., 2020) |
| 322 | Anthocyanins | Cyanidin | Fruit | RC |  | | (Shi et al., 2019) |
| 323 | Anthocyanins | Cyanidin 3-O-glucoside (Kuromanin) | Fruit | RC |  | | (Shi et al., 2019) |
| 324 | Anthocyanins | Cyanidin 3-O-glucosyl-malonylglucoside | Fruit | RC |  | | (Shi et al., 2019) |
| 325 | Anthocyanins | Cyanidin 3-O-rutinoside (Keracyanin) | Fruit | RC |  | | (Shi et al., 2019) |
| 326 | Anthocyanins | Cyanidin O-syringic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 327 | Anthocyanins | Delphinidin | Fruit | RC |  | | (Shi et al., 2019) |
| 328 | Anthocyanins | Delphinidin 3-O-glucoside (Mirtillin) | Fruit | RC |  | | (Shi et al., 2019) |
| 329 | Anthocyanins | Delphinidin 3-O-rutinoside (Tulipanin) | Fruit | RC |  | | (Shi et al., 2019) |
| 330 | Anthocyanins | Malvidin 3,5-diglucoside (Malvin) | Fruit | RC |  | | (Shi et al., 2019) |
| 331 | Anthocyanins | Pelargonidin | Fruit | RC |  | | (Shi et al., 2019) |
| 332 | Anthocyanins | Peonidin O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 333 | Anthocyanins | Peonidin O-malonylhexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 334 | Anthocyanins | Rosinidin O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 335 | Benzoic acid derivatives | 2,4-Dihydroxybenzoic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 336 | Benzoic acid derivatives | 2,5-dihydroxy benzoic acid O-hexside | Fruit | RC |  | | (Shi et al., 2019) |
| 337 | Benzoic acid derivatives | 4-Hydroxybenzaldehyde | Fruit | RC |  | | (Shi et al., 2019) |
| 338 | Benzoic acid derivatives | 8-Methyl-2-oxo-4-phenyl-2H-chromen-7-yl 4-(hexyloxy)benzoate | Fruit | RC |  | | (Shi et al., 2019) |
| 339 | Benzoic acid derivatives | Anthranilate O-hexosyl-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 340 | Benzoic acid derivatives | Anthranilic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 341 | Benzoic acid derivatives | Benzoic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 342 | Benzoic acid derivatives | Gallic acid O-Hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 343 | Benzoic acid derivatives | Methyl gallate | Fruit | RC |  | | (Shi et al., 2019) |
| 344 | Benzoic acid derivatives | p-Aminobenzoate | Fruit | RC |  | | (Shi et al., 2019) |
| 345 | Benzoic acid derivatives | Syringic acid O-feruloyl-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 346 | Benzoic acid derivatives | Syringic acid O-glucoside | Fruit | RC |  | | (Shi et al., 2019) |
| 347 | Benzoic acid derivatives | Vanillin | Fruit | RC |  | | (Shi et al., 2019) |
| 348 | Carbohydrates | 2-Deoxyribose 1-phosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 349 | Carbohydrates | D(-)-Threose | Fruit | RC |  | | (Shi et al., 2019) |
| 350 | Carbohydrates | D-(+)-Glucono-1,5-lactone | Fruit | RC |  | | (Shi et al., 2019) |
| 351 | Carbohydrates | D(+)-Glucose | Fruit | RC |  | | (Shi et al., 2019) |
| 352 | Carbohydrates | D(+)-Melezitose | Fruit | RC |  | | (Shi et al., 2019) |
| 353 | Carbohydrates | D(+)-Melezitose O-rhamnoside | Fruit | RC |  | | (Shi et al., 2019) |
| 354 | Carbohydrates | D-(+)-Sucrose | Fruit | RC |  | | (Shi et al., 2019) |
| 355 | Carbohydrates | D-Fructose 6-phosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 356 | Carbohydrates | D-glucoronic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 357 | Carbohydrates | D-Glucose 6-phosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 358 | Carbohydrates | DL-Arabinose | Fruit | RC |  | | (Shi et al., 2019) |
| 359 | Carbohydrates | D-Sedoheptuiose 7-phosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 360 | Carbohydrates | Glucarate O-Phosphoric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 361 | Carbohydrates | Gluconic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 362 | Carbohydrates | Glucosamine | Fruit | RC |  | | (Shi et al., 2019) |
| 363 | Carbohydrates | L-Fucose | Fruit | RC |  | | (Shi et al., 2019) |
| 364 | Carbohydrates | L-Gulonic-γ-lactone | Fruit | RC |  | | (Shi et al., 2019) |
| 365 | Carbohydrates | N-Acetyl-D-glucosamine | Fruit | RC |  | | (Shi et al., 2019) |
| 366 | Carbohydrates | Ribulose-5-phosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 367 | Carbohydrates | Trehalose 6-phosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 368 | Catechin derivatives | (+)-Gallocatechin (GC) | Fruit | RC |  | | (Shi et al., 2019) |
| 369 | Catechin derivatives | Epicatechin gallate (ECG) | Fruit | RC |  | | (Shi et al., 2019) |
| 370 | Catechin derivatives | Epigallate catechin gallate (EGCG) | Fruit | RC |  | | (Shi et al., 2019) |
| 371 | Catechin derivatives | Epigallocatechin (EGC) | Fruit | RC |  | | (Shi et al., 2019) |
| 372 | Catechin derivatives | Gallocatechin-catechin | Fruit | RC |  | | (Shi et al., 2019) |
| 373 | Catechin derivatives | Gallocatechin-gallocatechin | Fruit | RC |  | | (Shi et al., 2019) |
| 374 | Catechin derivatives | L-Epicatechin | Fruit | RC |  | | (Shi et al., 2019) |
| 375 | Catechin derivatives | Protocatechuic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 376 | Catechin derivatives | Protocatechuic acid O-glucoside | Fruit | RC |  | | (Shi et al., 2019) |
| 377 | Catechin derivatives | Protocatechuic aldehyde | Fruit | RC |  | | (Shi et al., 2019) |
| 378 | Cholines | Acetylcholine | Fruit | RC |  | | (Shi et al., 2019) |
| 379 | Cholines | Choline | Fruit | RC |  | | (Shi et al., 2019) |
| 380 | Cholines | Coumaroyl choline | Fruit | RC |  | | (Shi et al., 2019) |
| 381 | Cholines | Feruloylcholine | Fruit | RC |  | | (Shi et al., 2019) |
| 382 | Cholines | Sinapoylcholine | Fruit | RC |  | | (Shi et al., 2019) |
| 383 | Cholines | sn-Glycero-3-phosphocholine | Fruit | RC |  | | (Shi et al., 2019) |
| 384 | Coumarins | 4-hydroxycoumarin di-glucoside | Fruit | RC |  | | (Shi et al., 2019) |
| 385 | Coumarins | 6-Hydroxy-4-methylcoumarin | Fruit | RC |  | | (Shi et al., 2019) |
| 386 | Coumarins | 6-Methoxy-7,8-DihydroxyCoumarin | Fruit | RC |  | | (Shi et al., 2019) |
| 387 | Coumarins | Daphnetin | Fruit | RC |  | | (Shi et al., 2019) |
| 388 | Coumarins | Esculetin (6,7-dihydroxycoumarin) | Fruit | RC |  | | (Shi et al., 2019) |
| 389 | Coumarins | Esculetin O-quinacyl esculetin O-quinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 390 | Coumarins | Esculin (6,7-Dihydroxycoumarin-6-glucoside) | Fruit | RC |  | | (Shi et al., 2019) |
| 391 | Coumarins | O-Feruloyl 4-hydroxylcoumarin | Fruit | RC |  | | (Shi et al., 2019) |
| 392 | Coumarins | Scoparone | Fruit | RC |  | | (Shi et al., 2019) |
| 393 | Coumarins | Scopoletin (7-Hydroxy-5-methoxycoumarin) | Fruit | RC |  | | (Shi et al., 2019) |
| 394 | Flavanone | 4'-Hydroxy-5,7-dimethoxyflavanone | Fruit | RC |  | | (Shi et al., 2019) |
| 395 | Flavanone | Butein | Fruit | RC |  | | (Shi et al., 2019) |
| 396 | Flavanone | Hesperetin | Fruit | RC |  | | (Shi et al., 2019) |
| 397 | Flavanone | Hesperetin 5-O-glucoside | Fruit | RC |  | | (Shi et al., 2019) |
| 398 | Flavanone | Hesperetin O-Glucuronic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 399 | Flavanone | Hesperetin O-hexosyl-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 400 | Flavanone | Hesperetin O-malonylhexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 401 | Flavanone | Homoeriodictyol | Fruit | RC |  | | (Shi et al., 2019) |
| 402 | Flavanone | Isosakuranetin (4'-Methylnaringenin) | Fruit | RC |  | | (Shi et al., 2019) |
| 403 | Flavanone | Naringenin | Fruit | RC |  | | (Shi et al., 2019) |
| 404 | Flavanone | Naringenin 7-O-glucoside (Prunin) | Fruit | RC |  | | (Shi et al., 2019) |
| 405 | Flavanone | Naringenin 7-O-neohesperidoside (Naringin) | Fruit | RC |  | | (Shi et al., 2019) |
| 406 | Flavanone | Naringenin chalcone | Fruit | RC |  | | (Shi et al., 2019) |
| 407 | Flavanone | Naringenin O-malonylhexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 408 | Flavanone | Xanthohumol | Fruit | RC |  | | (Shi et al., 2019) |
| 409 | Flavone | 3’,4’,5’-Tricetin O-rutinoside | Fruit | RC |  | | (Shi et al., 2019) |
| 410 | Flavone | Acacetin | Fruit | RC |  | | (Shi et al., 2019) |
| 411 | Flavone | Acacetin O-acetyl hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 412 | Flavone | Acacetin O-glucuronic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 413 | Flavone | Apigenin 4-O-rhamnoside | Fruit | RC |  | | (Shi et al., 2019) |
| 414 | Flavone | Apigenin 5-O-glucoside | Fruit | RC |  | | (Shi et al., 2019) |
| 415 | Flavone | Apigenin 7-O-glucoside (Cosmosiin) | Fruit | RC |  | | (Shi et al., 2019) |
| 416 | Flavone | Apigenin 7-O-neohesperidoside (Rhoifolin) | Fruit | RC |  | | (Shi et al., 2019) |
| 417 | Flavone | Apigenin 7-rutinoside (Isorhoifolin) | Fruit | RC |  | | (Shi et al., 2019) |
| 418 | Flavone | Apigenin O-hexosyl-O-rutinoside | Fruit | RC |  | | (Shi et al., 2019) |
| 419 | Flavone | Butin | Fruit | RC |  | | (Shi et al., 2019) |
| 420 | Flavone | Chrysoeriol | Fruit | RC |  | | (Shi et al., 2019) |
| 421 | Flavone | Chrysoeriol 5-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 422 | Flavone | Chrysoeriol 7-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 423 | Flavone | Chrysoeriol 7-O-rutinoside | Fruit | RC |  | | (Shi et al., 2019) |
| 424 | Flavone | Chrysoeriol O-glucuronic acid-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 425 | Flavone | Chrysoeriol O-hexosyl-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 426 | Flavone | Chrysoeriol O-malonylhexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 427 | Flavone | Limocitrin O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 428 | Flavone | Luteolin | Fruit | RC |  | | (Shi et al., 2019) |
| 429 | Flavone | Luteolin 3',7-di-O-glucoside | Fruit | RC |  | | (Shi et al., 2019) |
| 430 | Flavone | Luteolin 7-O-glucoside (Cynaroside) | Fruit | RC |  | | (Shi et al., 2019) |
| 431 | Flavone | Luteolin O-hexosyl-O-hexosyl-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 432 | Flavone | Luteolin O-hexosyl-O-pentoside | Fruit | RC |  | | (Shi et al., 2019) |
| 433 | Flavone | Nobiletin | Fruit | RC |  | | (Shi et al., 2019) |
| 434 | Flavone | O-methylChrysoeriol 5-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 435 | Flavone | O-methylChrysoeriol 7-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 436 | Flavone | sakuranetin | Fruit | RC |  | | (Shi et al., 2019) |
| 437 | Flavone | Syringetin 5-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 438 | Flavone | Syringetin 7-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 439 | Flavone | Tangeretin | Fruit | RC |  | | (Shi et al., 2019) |
| 440 | Flavone | Tricetin O-malonylhexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 441 | Flavone | Tricin | Fruit | RC |  | | (Shi et al., 2019) |
| 442 | Flavone | Tricin 5-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 443 | Flavone | Tricin 5-O-hexosyl-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 444 | Flavone | Tricin 7-O-acetylglucoside | Fruit | RC |  | | (Shi et al., 2019) |
| 445 | Flavone | Tricin 7-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 446 | Flavone | Tricin 7-O-hexosyl-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 447 | Flavone | Tricin O-eudesmic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 448 | Flavone | Tricin O-malonylhexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 449 | Flavone | Tricin O-saccharic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 450 | Flavone C-glycosides | 6-C-hexosyl luteolin O-pentoside | Fruit | RC |  | | (Shi et al., 2019) |
| 451 | Flavone C-glycosides | 6-C-hexosyl-apigenin O-hexosyl-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 452 | Flavone C-glycosides | 6-C-hexosyl-hesperetin O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 453 | Flavone C-glycosides | 6-C-hexosyl-luteolin O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 454 | Flavone C-glycosides | 8-C-hexosyl-apigenin O-feruloylhexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 455 | Flavone C-glycosides | 8-C-hexosyl-apigenin O-hexosyl-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 456 | Flavone C-glycosides | 8-C-hexosyl-hesperetin O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 457 | Flavone C-glycosides | 8-C-hexosyl-luteolin O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 458 | Flavone C-glycosides | Apigenin C-glucoside | Fruit | RC |  | | (Shi et al., 2019) |
| 459 | Flavone C-glycosides | C-hexosyl-apigenin O-caffeoylhexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 460 | Flavone C-glycosides | C-hexosyl-apigenin O-p-coumaroylhexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 461 | Flavone C-glycosides | C-hexosyl-chrysin O-feruloylhexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 462 | Flavone C-glycosides | C-hexosyl-chrysoeriol O-sinapoylhexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 463 | Flavone C-glycosides | C-hexosyl-luteolin O-feruloylhexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 464 | Flavone C-glycosides | Chrysoeriol C-hexosyl-O-rhamnoside | Fruit | RC |  | | (Shi et al., 2019) |
| 465 | Flavone C-glycosides | C-pentosyl-chrysoeriol 7-O-feruloylhexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 466 | Flavone C-glycosides | di-C,C-hexosyl-apigenin | Fruit | RC |  | | (Shi et al., 2019) |
| 467 | Flavone C-glycosides | Eriodictiol 6-C-hexoside 8-C-hexoside-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 468 | Flavone C-glycosides | Eriodictyol C-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 469 | Flavone C-glycosides | Hesperetin C-hexosyl-O-hexosyl-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 470 | Flavone C-glycosides | Isovitexin | Fruit | RC |  | | (Shi et al., 2019) |
| 471 | Flavone C-glycosides | Luteolin 8-C-hexosyl-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 472 | Flavone C-glycosides | Luteolin C-hexosyl-O-rhamnoside O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 473 | Flavone C-glycosides | Vitexin 2''-O-beta-L-rhamnoside | Fruit | RC |  | | (Shi et al., 2019) |
| 474 | Flavonoids | Isorhamnetin | Fruit | RC |  | | (Yang et al., 2020) |
| 475 | Flavonoids | Isorhamnetin-3-O-rutinoside | Fruit | RC |  | | (Yang et al., 2020) |
| 476 | Flavonoids | Kaempferol | Fruit | RC |  | | (Yang et al., 2020) |
| 477 | Flavonoids | Kaempferol-3-O-rutinoside | Fruit | RC |  | | (Yang et al., 2020) |
| 478 | Flavonoids | Myricetin | Fruit | RC |  | | (Yang et al., 2020) |
| 479 | Flavonoids | Naringenin | Fruit | RC |  | | (Yang et al., 2020) |
| 480 | Flavonoids | Quercetin 3-rutinoside-hexose | Fruit | RC |  | | (Yang et al., 2020) |
| 481 | Flavonoids | Quercetin-3-O-glucoside | Fruit | RC |  | | (Yang et al., 2020) |
| 482 | Flavonoids | Rutin isomer 1 | Fruit | RC |  | | (Yang et al., 2020) |
| 483 | Flavonoids | Rutin isomer 2 | Fruit | RC |  | | (Yang et al., 2020) |
| 484 | Flavonol | Aromadedrin (Dihydrokaempferol) | Fruit | RC |  | | (Shi et al., 2019) |
| 485 | Flavonol | Dihydromyricetin | Fruit | RC |  | | (Shi et al., 2019) |
| 486 | Flavonol | Dihydroquercetin (Taxifolin) | Fruit | RC |  | | (Shi et al., 2019) |
| 487 | Flavonol | Di-O-methylquercetin | Fruit | RC |  | | (Shi et al., 2019) |
| 488 | Flavonol | Fustin | Fruit | RC |  | | (Shi et al., 2019) |
| 489 | Flavonol | Isorhamnetin | Fruit | RC |  | | (Shi et al., 2019) |
| 490 | Flavonol | Isorhamnetin 3-O-neohesperidoside | Fruit | RC |  | | (Shi et al., 2019) |
| 491 | Flavonol | Isorhamnetin 5-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 492 | Flavonol | Isorhamnetin O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 493 | Flavonol | Kaempferide | Fruit | RC |  | | (Shi et al., 2019) |
| 494 | Flavonol | Kaempferol | Fruit | RC |  | | (Shi et al., 2019) |
| 495 | Flavonol | Kaempferol 3-O-galactoside (Trifolin) | Fruit | RC |  | | (Shi et al., 2019) |
| 496 | Flavonol | Kaempferol 3-O-glucoside (Astragalin) | Fruit | RC |  | | (Shi et al., 2019) |
| 497 | Flavonol | Kaempferol 3-O-rhamnoside (Kaempferin) | Fruit | RC |  | | (Shi et al., 2019) |
| 498 | Flavonol | Kaempferol 3-O-robinobioside (Biorobin) | Fruit | RC |  | | (Shi et al., 2019) |
| 499 | Flavonol | Kaempferol 3-O-rutinoside (Nicotiflorin) | Fruit | RC |  | | (Shi et al., 2019) |
| 500 | Flavonol | Kaempferol-3-O-robinoside-7-O-rhamnoside (Robinin) | Fruit | RC |  | | (Shi et al., 2019) |
| 501 | Flavonol | Kumatakenin | Fruit | RC |  | | (Shi et al., 2019) |
| 502 | Flavonol | methylQuercetin O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 503 | Flavonol | Morin | Fruit | RC |  | | (Shi et al., 2019) |
| 504 | Flavonol | Myricetin | Fruit | RC |  | | (Shi et al., 2019) |
| 505 | Flavonol | Quercetin | Fruit | RC |  | | (Shi et al., 2019) |
| 506 | Flavonol | Quercetin 3-O-glucoside (Isotrifoliin) | Fruit | RC |  | | (Shi et al., 2019) |
| 507 | Flavonol | Quercetin 3-O-rutinoside (Rutin) | Fruit | RC |  | | (Shi et al., 2019) |
| 508 | Flavonol | Quercetin 4'-O-glucoside (Spiraeoside) | Fruit | RC |  | | (Shi et al., 2019) |
| 509 | Flavonol | Quercetin 7-O-rutinoside | Fruit | RC |  | | (Shi et al., 2019) |
| 510 | Flavonol | Syringetin 3-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 511 | Flavonolignan | Tricin 4'-O-(syringyl alcohol) ether 7-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 512 | Flavonolignan | Tricin 4'-O-β-guaiacylglycerol | Fruit | RC |  | | (Shi et al., 2019) |
| 513 | Hydroxycinnamic acid derivatives | Caffeic acid | Fruit | RC |  | | (Yang et al., 2020) |
| 514 | Hydroxycinnamic acid derivatives | Chlorogenic acid | Fruit | RC |  | | (Yang et al., 2020) |
| 515 | Hydroxycinnamic acid derivatives | Ferulic acid | Fruit | RC |  | | (Yang et al., 2020) |
| 516 | Hydroxycinnamic acid derivatives | p-coumaric acid | Fruit | RC |  | | (Yang et al., 2020) |
| 517 | Hydroxycinnamic acid derivatives | Sinapinic acid | Fruit | RC |  | | (Yang et al., 2020) |
| 518 | Hydroxycinnamic acid derivatives | Sinapinic acid derivative 1 | Fruit | RC |  | | (Yang et al., 2020) |
| 519 | Hydroxycinnamoyl derivatives | 1-O-beta-D-Glucopyranosyl sinapate | Fruit | RC |  | | (Shi et al., 2019) |
| 520 | Hydroxycinnamoyl derivatives | 3-(4-Hydroxyphenyl)propionic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 521 | Hydroxycinnamoyl derivatives | 3,4-Dimethoxycinnamic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 522 | Hydroxycinnamoyl derivatives | 3-Hydroxy-4-methoxycinnamic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 523 | Hydroxycinnamoyl derivatives | 4-Methoxycinnamic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 524 | Hydroxycinnamoyl derivatives | 6-Hydroxymethylherniarin | Fruit | RC |  | | (Shi et al., 2019) |
| 525 | Hydroxycinnamoyl derivatives | Caffeic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 526 | Hydroxycinnamoyl derivatives | Caffeic acid O-glucoside | Fruit | RC |  | | (Shi et al., 2019) |
| 527 | Hydroxycinnamoyl derivatives | Caffeic aldehyde | Fruit | RC |  | | (Shi et al., 2019) |
| 528 | Hydroxycinnamoyl derivatives | Caftaric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 529 | Hydroxycinnamoyl derivatives | Cinnamic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 530 | Hydroxycinnamoyl derivatives | Coniferin | Fruit | RC |  | | (Shi et al., 2019) |
| 531 | Hydroxycinnamoyl derivatives | Coniferylaldehyde | Fruit | RC |  | | (Shi et al., 2019) |
| 532 | Hydroxycinnamoyl derivatives | Coumarin O-rutinoside | Fruit | RC |  | | (Shi et al., 2019) |
| 533 | Hydroxycinnamoyl derivatives | Disinapoyl hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 534 | Hydroxycinnamoyl derivatives | Ferulic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 535 | Hydroxycinnamoyl derivatives | Gallic acid O-feruloyl-O-hexosyl-O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 536 | Hydroxycinnamoyl derivatives | Homovanillic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 537 | Hydroxycinnamoyl derivatives | Hydroxy-methoxycinnamate | Fruit | RC |  | | (Shi et al., 2019) |
| 538 | Hydroxycinnamoyl derivatives | Medicarpin | Fruit | RC |  | | (Shi et al., 2019) |
| 539 | Hydroxycinnamoyl derivatives | O-Caffeoyl maltotriose | Fruit | RC |  | | (Shi et al., 2019) |
| 540 | Hydroxycinnamoyl derivatives | p-Coumaraldehyde | Fruit | RC |  | | (Shi et al., 2019) |
| 541 | Hydroxycinnamoyl derivatives | p-Coumaric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 542 | Hydroxycinnamoyl derivatives | p-Coumaryl alcohol | Fruit | RC |  | | (Shi et al., 2019) |
| 543 | Hydroxycinnamoyl derivatives | Pinoresinol | Fruit | RC |  | | (Shi et al., 2019) |
| 544 | Hydroxycinnamoyl derivatives | Resveratrol | Fruit | RC |  | | (Shi et al., 2019) |
| 545 | Hydroxycinnamoyl derivatives | Sinapic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 546 | Hydroxycinnamoyl derivatives | Sinapinaldehyde | Fruit | RC |  | | (Shi et al., 2019) |
| 547 | Hydroxycinnamoyl derivatives | Sinapyl alcohol | Fruit | RC |  | | (Shi et al., 2019) |
| 548 | Hydroxycinnamoyl derivatives | Syringaldehyde | Fruit | RC |  | | (Shi et al., 2019) |
| 549 | Hydroxycinnamoyl derivatives | Syringic acid | Fruit | RC |  | | (Shi et al., 2019) |
|  | Hydroxycinnamoyl derivatives | Syringin | Fruit | RC |  | | (Shi et al., 2019) |
| 551 | Hydroxycinnamoyl derivatives | trans-cinnamaldehyde | Fruit | RC |  | | (Shi et al., 2019) |
| 552 | Hydroxycinnamoyl derivatives | Vanillic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 553 | Indole derivatives | 3-Indoleacetonitrile | Fruit | RC |  | | (Shi et al., 2019) |
| 554 | Indole derivatives | Indole | Fruit | RC |  | | (Shi et al., 2019) |
| 555 | Indole derivatives | Indole-3-carboxaldehyde | Fruit | RC |  | | (Shi et al., 2019) |
| 556 | Indole derivatives | Indole-5-carboxylic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 557 | Indole derivatives | Methoxyindoleacetic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 558 | Isoflavone | 2'-Hydroxygenistein | Fruit | RC |  | | (Shi et al., 2019) |
| 559 | Isoflavone | 6-Hydroxydaidzein | Fruit | RC |  | | (Shi et al., 2019) |
| 560 | Isoflavone | Daidzein | Fruit | RC |  | | (Shi et al., 2019) |
| 561 | Isoflavone | Formononetin (4'-O-methyldaidzein) | Fruit | RC |  | | (Shi et al., 2019) |
| 562 | Isoflavone | Genistein 7-O-Glucoside (Genistin) | Fruit | RC |  | | (Shi et al., 2019) |
| 563 | Isoflavone | Glycitin | Fruit | RC |  | | (Shi et al., 2019) |
| 564 | Lipids\_Fatty acids | 12,13-EODE | Fruit | RC |  | | (Shi et al., 2019) |
| 565 | Lipids\_Fatty acids | 13-HOTrE(r) | Fruit | RC |  | | (Shi et al., 2019) |
| 566 | Lipids\_Fatty acids | 13-HPODE | Fruit | RC |  | | (Shi et al., 2019) |
| 567 | Lipids\_Fatty acids | 13-HpOTrE(r) | Fruit | RC |  | | (Shi et al., 2019) |
| 568 | Lipids\_Fatty acids | 14,15-Dehydrocrepenynic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 569 | Lipids\_Fatty acids | 4-Hydroxysphinganine | Fruit | RC |  | | (Shi et al., 2019) |
| 570 | Lipids\_Fatty acids | 8,15-DiHETE | Fruit | RC |  | | (Shi et al., 2019) |
| 571 | Lipids\_Fatty acids | 9,10-EODE | Fruit | RC |  | | (Shi et al., 2019) |
| 572 | Lipids\_Fatty acids | 9-HOTrE | Fruit | RC |  | | (Shi et al., 2019) |
| 573 | Lipids\_Fatty acids | 9-HpOTrE | Fruit | RC |  | | (Shi et al., 2019) |
| 574 | Lipids\_Fatty acids | 9-Hydroxy-(10E,12Z,15Z)-octadecatrienoic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 575 | Lipids\_Fatty acids | 9-KODE | Fruit | RC |  | | (Shi et al., 2019) |
| 576 | Lipids\_Fatty acids | Lauric acid (C12:0) | Fruit | RC |  | | (Shi et al., 2019) |
| 577 | Lipids\_Fatty acids | Myristoleic acid (C14:1) | Fruit | RC |  | | (Shi et al., 2019) |
| 578 | Lipids\_Fatty acids | Octadeca-11E,13E,15Z-trienoic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 579 | Lipids\_Fatty acids | Octadecadien-6-ynoic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 580 | Lipids\_Fatty acids | Palmitaldehyde | Fruit | RC |  | | (Shi et al., 2019) |
| 581 | Lipids\_Fatty acids | Punicic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 582 | Lipids\_Fatty acids | α-Linolenic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 583 | Lipids\_Glycerolipids | DGMG (18:1) | Fruit | RC |  | | (Shi et al., 2019) |
| 584 | Lipids\_Glycerolipids | DGMG (18:2) isomer1 | Fruit | RC |  | | (Shi et al., 2019) |
| 585 | Lipids\_Glycerolipids | DGMG (18:2) isomer2 | Fruit | RC |  | | (Shi et al., 2019) |
| 586 | Lipids\_Glycerolipids | DGMG (18:2) isomer3 | Fruit | RC |  | | (Shi et al., 2019) |
| 587 | Lipids\_Glycerolipids | MAG (18:1) isomer1 | Fruit | RC |  | | (Shi et al., 2019) |
| 588 | Lipids\_Glycerolipids | MAG (18:1) isomer2 | Fruit | RC |  | | (Shi et al., 2019) |
| 589 | Lipids\_Glycerolipids | MAG (18:2) | Fruit | RC |  | | (Shi et al., 2019) |
| 590 | Lipids\_Glycerolipids | MAG (18:2) isomer1 | Fruit | RC |  | | (Shi et al., 2019) |
| 591 | Lipids\_Glycerolipids | MAG (18:3) isomer1 | Fruit | RC |  | | (Shi et al., 2019) |
| 592 | Lipids\_Glycerolipids | MAG (18:3) isomer2 | Fruit | RC |  | | (Shi et al., 2019) |
| 593 | Lipids\_Glycerolipids | MAG (18:3) isomer3 | Fruit | RC |  | | (Shi et al., 2019) |
| 594 | Lipids\_Glycerolipids | MAG (18:3) isomer4 | Fruit | RC |  | | (Shi et al., 2019) |
| 595 | Lipids\_Glycerolipids | MAG (18:3) isomer5 | Fruit | RC |  | | (Shi et al., 2019) |
| 596 | Lipids\_Glycerolipids | MAG (18:4) isomer2 | Fruit | RC |  | | (Shi et al., 2019) |
| 597 | Lipids\_Glycerolipids | MAG (18:4) isomer3 | Fruit | RC |  | | (Shi et al., 2019) |
| 598 | Lipids\_Glycerolipids | MGMG (18:2) isomer1 | Fruit | RC |  | | (Shi et al., 2019) |
| 599 | Lipids\_Glycerolipids | MGMG (18:2) isomer2 | Fruit | RC |  | | (Shi et al., 2019) |
| 600 | Lipids\_Glycerophospholipids | LysoPC 12:1 | Fruit | RC |  | | (Shi et al., 2019) |
| 601 | Lipids\_Glycerophospholipids | LysoPC 14:0 | Fruit | RC |  | | (Shi et al., 2019) |
| 602 | Lipids\_Glycerophospholipids | LysoPC 14:0 (2n isomer) | Fruit | RC |  | | (Shi et al., 2019) |
| 603 | Lipids\_Glycerophospholipids | LysoPC 15:0 | Fruit | RC |  | | (Shi et al., 2019) |
| 604 | Lipids\_Glycerophospholipids | LysoPC 15:1 | Fruit | RC |  | | (Shi et al., 2019) |
| 605 | Lipids\_Glycerophospholipids | LysoPC 16:0 | Fruit | RC |  | | (Shi et al., 2019) |
| 606 | Lipids\_Glycerophospholipids | LysoPC 16:0 (2n isomer) | Fruit | RC |  | | (Shi et al., 2019) |
| 607 | Lipids\_Glycerophospholipids | LysoPC 16:1 | Fruit | RC |  | | (Shi et al., 2019) |
| 608 | Lipids\_Glycerophospholipids | LysoPC 16:1 (2n isomer) | Fruit | RC |  | | (Shi et al., 2019) |
| 609 | Lipids\_Glycerophospholipids | LysoPC 16:2 (2n isomer) | Fruit | RC |  | | (Shi et al., 2019) |
| 610 | Lipids\_Glycerophospholipids | LysoPC 17:0 | Fruit | RC |  | | (Shi et al., 2019) |
| 611 | Lipids\_Glycerophospholipids | LysoPC 18:0 | Fruit | RC |  | | (Shi et al., 2019) |
| 612 | Lipids\_Glycerophospholipids | LysoPC 18:0 (2n isomer) | Fruit | RC |  | | (Shi et al., 2019) |
| 613 | Lipids\_Glycerophospholipids | LysoPC 18:1 | Fruit | RC |  | | (Shi et al., 2019) |
| 614 | Lipids\_Glycerophospholipids | LysoPC 18:1 (2n isomer) | Fruit | RC |  | | (Shi et al., 2019) |
| 615 | Lipids\_Glycerophospholipids | LysoPC 18:2 | Fruit | RC |  | | (Shi et al., 2019) |
| 616 | Lipids\_Glycerophospholipids | LysoPC 18:2 (2n isomer) | Fruit | RC |  | | (Shi et al., 2019) |
| 617 | Lipids\_Glycerophospholipids | LysoPC 18:3 | Fruit | RC |  | | (Shi et al., 2019) |
| 618 | Lipids\_Glycerophospholipids | LysoPC 18:3 (2n isomer) | Fruit | RC |  | | (Shi et al., 2019) |
| 619 | Lipids\_Glycerophospholipids | LysoPC 19:0 | Fruit | RC |  | | (Shi et al., 2019) |
| 620 | Lipids\_Glycerophospholipids | LysoPC 20:1 | Fruit | RC |  | | (Shi et al., 2019) |
| 621 | Lipids\_Glycerophospholipids | LysoPC 20:1 (2n isomer) | Fruit | RC |  | | (Shi et al., 2019) |
| 622 | Lipids\_Glycerophospholipids | LysoPC 20:4 | Fruit | RC |  | | (Shi et al., 2019) |
| 623 | Lipids\_Glycerophospholipids | LysoPE 14:0 | Fruit | RC |  | | (Shi et al., 2019) |
| 624 | Lipids\_Glycerophospholipids | LysoPE 14:0 (2n isomer) | Fruit | RC |  | | (Shi et al., 2019) |
| 625 | Lipids\_Glycerophospholipids | LysoPE 16:0 | Fruit | RC |  | | (Shi et al., 2019) |
| 626 | Lipids\_Glycerophospholipids | LysoPE 16:0 (2n isomer) | Fruit | RC |  | | (Shi et al., 2019) |
| 627 | Lipids\_Glycerophospholipids | LysoPE 18:0 | Fruit | RC |  | | (Shi et al., 2019) |
| 628 | Lipids\_Glycerophospholipids | LysoPE 18:0 (2n isomer) | Fruit | RC |  | | (Shi et al., 2019) |
| 629 | Lipids\_Glycerophospholipids | LysoPE 18:1 | Fruit | RC |  | | (Shi et al., 2019) |
| 630 | Lipids\_Glycerophospholipids | LysoPE 18:1 (2n isomer) | Fruit | RC |  | | (Shi et al., 2019) |
| 631 | Lipids\_Glycerophospholipids | LysoPE 18:2 (2n isomer) | Fruit | RC |  | | (Shi et al., 2019) |
| 632 | Lipids\_Glycerophospholipids | LysoPE 18:3 | Fruit | RC |  | | (Shi et al., 2019) |
| 633 | Lipids\_Glycerophospholipids | PC 19:2/16:0 | Fruit | RC |  | | (Shi et al., 2019) |
| 634 | Nicotinic acid derivatives | 6-hydroxynicotinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 635 | Nicotinic acid derivatives | Nicotinate ribonucleoside | Fruit | RC |  | | (Shi et al., 2019) |
| 636 | Nicotinic acid derivatives | Nicotinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 637 | Nicotinic acid derivatives | Nicotinic acid-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 638 | Nucleotide and its derivates | 1-Methyladenine | Fruit | RC |  | | (Shi et al., 2019) |
| 639 | Nucleotide and its derivates | 1-Methyladenosine | Fruit | RC |  | | (Shi et al., 2019) |
| 640 | Nucleotide and its derivates | 1-methylguanidine | Fruit | RC |  | | (Shi et al., 2019) |
| 641 | Nucleotide and its derivates | 2-(dimethylamino)guanosine | Fruit | RC |  | | (Shi et al., 2019) |
| 642 | Nucleotide and its derivates | 2'-Deoxyadenosine-5'-monophosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 643 | Nucleotide and its derivates | 2'-Deoxycytidine-5'-monophosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 644 | Nucleotide and its derivates | 2'-Deoxyinosine-5'-monophosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 645 | Nucleotide and its derivates | 5'-Deoxy-5'-(methylthio)adenosine | Fruit | RC |  | | (Shi et al., 2019) |
| 646 | Nucleotide and its derivates | 5-Methylcytosine | Fruit | RC |  | | (Shi et al., 2019) |
| 647 | Nucleotide and its derivates | 5-Methyluridine | Fruit | RC |  | | (Shi et al., 2019) |
| 648 | Nucleotide and its derivates | 6-Methylmercaptopurine | Fruit | RC |  | | (Shi et al., 2019) |
| 649 | Nucleotide and its derivates | 7-methylguanine | Fruit | RC |  | | (Shi et al., 2019) |
| 650 | Nucleotide and its derivates | 8-Hydroxy-2-deoxyguanosine | Fruit | RC |  | | (Shi et al., 2019) |
| 651 | Nucleotide and its derivates | 8-Hydroxyguanosine | Fruit | RC |  | | (Shi et al., 2019) |
| 652 | Nucleotide and its derivates | Adenine | Fruit | RC |  | | (Shi et al., 2019) |
| 653 | Nucleotide and its derivates | Adenosine | Fruit | RC |  | | (Shi et al., 2019) |
| 654 | Nucleotide and its derivates | Adenosine 3'-monophosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 655 | Nucleotide and its derivates | Adenosine 5'-monophosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 656 | Nucleotide and its derivates | Adenosine O-ribose | Fruit | RC |  | | (Shi et al., 2019) |
| 657 | Nucleotide and its derivates | Cyclic AMP | Fruit | RC |  | | (Shi et al., 2019) |
| 658 | Nucleotide and its derivates | Cytidine | Fruit | RC |  | | (Shi et al., 2019) |
| 659 | Nucleotide and its derivates | Cytidine 5'-monophosphate (Cytidylic acid) | Fruit | RC |  | | (Shi et al., 2019) |
| 660 | Nucleotide and its derivates | Cytosine | Fruit | RC |  | | (Shi et al., 2019) |
| 661 | Nucleotide and its derivates | Deoxyadenosine | Fruit | RC |  | | (Shi et al., 2019) |
| 662 | Nucleotide and its derivates | Deoxycytidine | Fruit | RC |  | | (Shi et al., 2019) |
| 663 | Nucleotide and its derivates | Deoxyguanosine | Fruit | RC |  | | (Shi et al., 2019) |
| 664 | Nucleotide and its derivates | Dihydrouracil | Fruit | RC |  | | (Shi et al., 2019) |
| 665 | Nucleotide and its derivates | Flavin adenine dinucleotide (FAD) | Fruit | RC |  | | (Shi et al., 2019) |
| 666 | Nucleotide and its derivates | Guanine | Fruit | RC |  | | (Shi et al., 2019) |
| 667 | Nucleotide and its derivates | Guanosine | Fruit | RC |  | | (Shi et al., 2019) |
| 668 | Nucleotide and its derivates | Guanosine 3',5'-cyclic monophosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 669 | Nucleotide and its derivates | Guanosine 5'-monophosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 670 | Nucleotide and its derivates | Guanosine monophosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 671 | Nucleotide and its derivates | Hypoxanthine | Fruit | RC |  | | (Shi et al., 2019) |
| 672 | Nucleotide and its derivates | Hypoxanthine-9-β-D-arabinofuranoside | Fruit | RC |  | | (Shi et al., 2019) |
| 673 | Nucleotide and its derivates | Inosine | Fruit | RC |  | | (Shi et al., 2019) |
| 674 | Nucleotide and its derivates | Inosine 5'-monophosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 675 | Nucleotide and its derivates | iP7G | Fruit | RC |  | | (Shi et al., 2019) |
| 676 | Nucleotide and its derivates | N2-methylguanosine | Fruit | RC |  | | (Shi et al., 2019) |
| 677 | Nucleotide and its derivates | N6-Succinyl Adenosine | Fruit | RC |  | | (Shi et al., 2019) |
| 678 | Nucleotide and its derivates | Nicotinic acid adenine dinucleotide | Fruit | RC |  | | (Shi et al., 2019) |
| 679 | Nucleotide and its derivates | Purine | Fruit | RC |  | | (Shi et al., 2019) |
| 680 | Nucleotide and its derivates | Succinyladenosine | Fruit | RC |  | | (Shi et al., 2019) |
| 681 | Nucleotide and its derivates | Thymine | Fruit | RC |  | | (Shi et al., 2019) |
| 682 | Nucleotide and its derivates | Uracil | Fruit | RC |  | | (Shi et al., 2019) |
| 683 | Nucleotide and its derivates | Uridine | Fruit | RC |  | | (Shi et al., 2019) |
| 684 | Nucleotide and its derivates | Uridine 5’-diphosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 685 | Nucleotide and its derivates | Uridine 5'-diphospho-D-glucose | Fruit | RC |  | | (Shi et al., 2019) |
| 686 | Nucleotide and its derivates | Uridine 5'-monophosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 687 | Nucleotide and its derivates | Xanthine | Fruit | RC |  | | (Shi et al., 2019) |
| 688 | Nucleotide and its derivates | Xanthosine | Fruit | RC |  | | (Shi et al., 2019) |
| 689 | Nucleotide and its derivates | β-Nicotinamide mononucleotide | Fruit | RC |  | | (Shi et al., 2019) |
| 690 | Nucleotide and its derivates | β-Pseudouridine | Fruit | RC |  | | (Shi et al., 2019) |
| 691 | Organic acids | (3,4-Dimethoxyphenyl) acetic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 692 | Organic acids | (Rs)-Mevalonic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 693 | Organic acids | (S)-(-)-2-Hydroxyisocaproic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 694 | Organic acids | 2-(Formylamino)benzoic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 695 | Organic acids | 2,3-Dihydroxybenzoic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 696 | Organic acids | 2-Aminoethanesulfinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 697 | Organic acids | 2-Aminoethanesulfonic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 698 | Organic acids | 2-Isopropylmalate | Fruit | RC |  | | (Shi et al., 2019) |
| 699 | Organic acids | 2-Methylglutaric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 700 | Organic acids | 2-Methylsuccinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 701 | Organic acids | 2-Picolinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 702 | Organic acids | 3-Hydroxy-3-methyl butyric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 703 | Organic acids | 3-Hydroxybutyrate | Fruit | RC |  | | (Shi et al., 2019) |
| 704 | Organic acids | 3-Hydroxypropanoic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 705 | Organic acids | 4-Acetamidobutyric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 706 | Organic acids | 4-Ethylbenzoic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 707 | Organic acids | 4-Guanidinobutyric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 708 | Organic acids | 4-Hydroxy-2-oxoglutaric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 709 | Organic acids | 4-Hydroxy-3-methoxymandelate | Fruit | RC |  | | (Shi et al., 2019) |
| 710 | Organic acids | 4-Hydroxybenzoic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 711 | Organic acids | 4-Oxopentanoate | Fruit | RC |  | | (Shi et al., 2019) |
| 712 | Organic acids | 5-Aminolevulinate | Fruit | RC |  | | (Shi et al., 2019) |
| 713 | Organic acids | 5-hydroxyhexanoic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 714 | Organic acids | 6-Aminocaproic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 715 | Organic acids | Adipic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 716 | Organic acids | A-Ketoglutaric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 717 | Organic acids | Aminomalonic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 718 | Organic acids | Argininosuccinate | Fruit | RC |  | | (Shi et al., 2019) |
| 719 | Organic acids | Azelaic Acid | Fruit | RC |  | | (Shi et al., 2019) |
| 720 | Organic acids | Citramalate | Fruit | RC |  | | (Shi et al., 2019) |
| 721 | Organic acids | Citric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 722 | Organic acids | Creatine | Fruit | RC |  | | (Shi et al., 2019) |
| 723 | Organic acids | Creatinine | Fruit | RC |  | | (Shi et al., 2019) |
| 724 | Organic acids | D-Erythronolactone | Fruit | RC |  | | (Shi et al., 2019) |
| 725 | Organic acids | Diethyl phosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 726 | Organic acids | Dl-2-Aminooctanoic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 727 | Organic acids | Dodecanedioic aicd | Fruit | RC |  | | (Shi et al., 2019) |
| 728 | Organic acids | D-Pantothenic dcid | Fruit | RC |  | | (Shi et al., 2019) |
| 729 | Organic acids | D-Xylonic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 730 | Organic acids | Ethyl 3,4-Dihydroxybenzoate (Ethyl protocatechuate) | Fruit | RC |  | | (Shi et al., 2019) |
| 731 | Organic acids | Fumaric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 732 | Organic acids | Glutaric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 733 | Organic acids | Guanidinoethyl sulfonate | Fruit | RC |  | | (Shi et al., 2019) |
| 734 | Organic acids | Kynurenic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 735 | Organic acids | Kynurenic acid O-hexside | Fruit | RC |  | | (Shi et al., 2019) |
| 736 | Organic acids | L(-)-Malic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 737 | Organic acids | L-(+)-Tartaric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 738 | Organic acids | Maleic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 739 | Organic acids | Methylglutaric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 740 | Organic acids | Methylmalonic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 741 | Organic acids | Phthalic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 742 | Organic acids | Rosmarinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 743 | Organic acids | Sebacate | Fruit | RC |  | | (Shi et al., 2019) |
| 744 | Organic acids | Shikimic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 745 | Organic acids | Sinapoyl malate | Fruit | RC |  | | (Shi et al., 2019) |
| 746 | Organic acids | Suberic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 747 | Organic acids | Succinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 748 | Organic acids | Taurocholic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 749 | Organic acids | Terephthalic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 750 | Organic acids | trans,trans-Muconic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 751 | Organic acids | trans-Citridic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 752 | Organic acids | Xanthurenic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 753 | Organic acids | γ-aminobutyric acid | Fruit | RC |  | | (Shi et al., 2019) |
| 754 | Others | 10-Formyl-THF | Fruit | RC |  | | (Shi et al., 2019) |
| 755 | Others | 2-Aminoethylphosphonate | Fruit | RC |  | | (Shi et al., 2019) |
| 756 | Others | 3-Hydroxypyridine | Fruit | RC |  | | (Shi et al., 2019) |
| 757 | Others | 4-(Aminomethyl)-5-(hydroxymethyl)-2-methylpyridin-3-ol | Fruit | RC |  | | (Shi et al., 2019) |
| 758 | Others | 4-Methyl-5-thiazoleethanol | Fruit | RC |  | | (Shi et al., 2019) |
| 759 | Others | 4-Nitrophenol | Fruit | RC |  | | (Shi et al., 2019) |
| 760 | Others | Aminopurine | Fruit | RC |  | | (Shi et al., 2019) |
| 761 | Others | Arctiin | Fruit | RC |  | | (Shi et al., 2019) |
| 762 | Others | Azoxystrobin acid | Fruit | RC |  | | (Shi et al., 2019) |
| 763 | Others | Benzamide | Fruit | RC |  | | (Shi et al., 2019) |
| 764 | Others | Cholesterol | Fruit | RC |  | | (Shi et al., 2019) |
| 765 | Others | Cocamidopropyl betaine | Fruit | RC |  | | (Shi et al., 2019) |
| 766 | Others | D-erythro-Dihydrosphingosine | Fruit | RC |  | | (Shi et al., 2019) |
| 767 | Others | Diethanolamine | Fruit | RC |  | | (Shi et al., 2019) |
| 768 | Others | DIMBOA glucoside | Fruit | RC |  | | (Shi et al., 2019) |
| 769 | Others | E-3,4,5'-Trihydroxy-3'-glucopyranosylstilbene | Fruit | RC |  | | (Shi et al., 2019) |
| 770 | Others | Ellagic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 771 | Others | Histidinol | Fruit | RC |  | | (Shi et al., 2019) |
| 772 | Others | Hydroxyphenethylamine | Fruit | RC |  | | (Shi et al., 2019) |
| 773 | Others | Inositol | Fruit | RC |  | | (Shi et al., 2019) |
| 774 | Others | Isovitexin 7-O-glucoside (Saponarin) | Fruit | RC |  | | (Shi et al., 2019) |
| 775 | Others | L-Carnitine | Fruit | RC |  | | (Shi et al., 2019) |
| 776 | Others | N-Acetylglucosamine 1-phosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 777 | Others | NADP | Fruit | RC |  | | (Shi et al., 2019) |
| 778 | Others | N-Lauryldiethanolamine | Fruit | RC |  | | (Shi et al., 2019) |
| 779 | Others | O-Phosphorylethanolamine | Fruit | RC |  | | (Shi et al., 2019) |
| 780 | Others | Phellodensin F | Fruit | RC |  | | (Shi et al., 2019) |
| 781 | Others | Phenethylamine | Fruit | RC |  | | (Shi et al., 2019) |
| 782 | Others | Phthalic anhydride | Fruit | RC |  | | (Shi et al., 2019) |
| 783 | Others | sesamolin | Fruit | RC |  | | (Shi et al., 2019) |
| 784 | Phenolamides | Agmatine | Fruit | RC |  | | (Shi et al., 2019) |
| 785 | Phenolamides | N-(4'-O-glycosyl)-feruloyl agmatine | Fruit | RC |  | | (Shi et al., 2019) |
| 786 | Phenolamides | N-(4'-O-glycosyl)-p-coumaroyl agmatine | Fruit | RC |  | | (Shi et al., 2019) |
| 787 | Phenolamides | N', N''-di-p-coumaroylspermidine | Fruit | RC |  | | (Shi et al., 2019) |
| 788 | Phenolamides | N',N",N"'-p-coumaroyl-cinnamoyl-caffeoyl spermidine | Fruit | RC |  | | (Shi et al., 2019) |
| 789 | Phenolamides | N-Acetyl tryptamine | Fruit | RC |  | | (Shi et al., 2019) |
| 790 | Phenolamides | N-Acetylputrescine | Fruit | RC |  | | (Shi et al., 2019) |
| 791 | Phenolamides | N-Caffeoyl agmatine | Fruit | RC |  | | (Shi et al., 2019) |
| 792 | Phenolamides | N-Caffeoyl putrescine | Fruit | RC |  | | (Shi et al., 2019) |
| 793 | Phenolamides | N-Caffeoylspermidine | Fruit | RC |  | | (Shi et al., 2019) |
| 794 | Phenolamides | N-Feruloyl agmatine | Fruit | RC |  | | (Shi et al., 2019) |
| 795 | Phenolamides | N'-Feruloyl putrescine | Fruit | RC |  | | (Shi et al., 2019) |
| 796 | Phenolamides | N-Feruloyl tyramine | Fruit | RC |  | | (Shi et al., 2019) |
| 797 | Phenolamides | N-hexosyl-p-coumaroyl putrescine | Fruit | RC |  | | (Shi et al., 2019) |
| 798 | Phenolamides | N'-p-Coumaroyl agmatine | Fruit | RC |  | | (Shi et al., 2019) |
| 799 | Phenolamides | N-p-Coumaroyl hydroxydehydroagmatine | Fruit | RC |  | | (Shi et al., 2019) |
| 800 | Phenolamides | N'-p-Coumaroyl putrescine | Fruit | RC |  | | (Shi et al., 2019) |
| 801 | Phenolamides | N-p-Coumaroyl putrescine | Fruit | RC |  | | (Shi et al., 2019) |
| 802 | Phenolamides | N-Sinapoyl putrescine | Fruit | RC |  | | (Shi et al., 2019) |
| 803 | Phenolamides | Spermine | Fruit | RC |  | | (Shi et al., 2019) |
| 804 | Proanthocyanidins | Procyanidin A2 | Fruit | RC |  | | (Shi et al., 2019) |
| 805 | Proanthocyanidins | Procyanidin B2 | Fruit | RC |  | | (Shi et al., 2019) |
| 806 | Pyridine derivatives | 1,4-dihydro-1-Methyl-4-oxo-3-pyridinecarboxamide | Fruit | RC |  | | (Shi et al., 2019) |
| 807 | Pyridine derivatives | 3-Carbamyl-1-methylpyridinium (1-Methylnicotinamide) | Fruit | RC |  | | (Shi et al., 2019) |
| 808 | Pyridine derivatives | 4-Pyridoxic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 809 | Quinate and its derivatives | 1-O-Caffeoyl quinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 810 | Quinate and its derivatives | 1-O-Feruloyl quinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 811 | Quinate and its derivatives | 3-O-Feruloyl quinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 812 | Quinate and its derivatives | 3-O-Feruloyl quinic acid glucoside | Fruit | RC |  | | (Shi et al., 2019) |
| 813 | Quinate and its derivatives | 3-O-p-Coumaroyl quinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 814 | Quinate and its derivatives | 3-O-p-coumaroyl quinic acid O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 815 | Quinate and its derivatives | 3-O-p-Coumaroyl shikimic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 816 | Quinate and its derivatives | 3-O-p-coumaroyl shikimic acid O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 817 | Quinate and its derivatives | 4-O-Caffeoyl quinic acid (criptochlorogenic acid) | Fruit | RC |  | | (Shi et al., 2019) |
| 818 | Quinate and its derivatives | 5-O-Feruloyl quinic acid glucoside | Fruit | RC |  | | (Shi et al., 2019) |
| 819 | Quinate and its derivatives | 5-O-p-coumaroyl quinic acid O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 820 | Quinate and its derivatives | 5-O-p-Coumaroyl shikimic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 821 | Quinate and its derivatives | 5-O-p-coumaroyl shikimic acid O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 822 | Quinate and its derivatives | 5-O-p-Coumaroylquinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 823 | Quinate and its derivatives | Chlorogenic acid (3-O-Caffeoylquinic acid) | Fruit | RC |  | | (Shi et al., 2019) |
| 824 | Quinate and its derivatives | Chlorogenic acid methyl ester | Fruit | RC |  | | (Shi et al., 2019) |
| 825 | Quinate and its derivatives | Eudesmoyl quinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 826 | Quinate and its derivatives | Neochlorogenic acid (5-O-Caffeoylquinic acid) | Fruit | RC |  | | (Shi et al., 2019) |
| 827 | Quinate and its derivatives | O-Feruloyl quinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 828 | Quinate and its derivatives | Quinacyl syringic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 829 | Quinate and its derivatives | Quinic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 830 | Terpenoids | Cucurbitacin D | Fruit | RC |  | | (Shi et al., 2019) |
| 831 | Terpenoids | Phytocassane C | Fruit | RC |  | | (Shi et al., 2019) |
| 832 | Tryptamine derivatives | 5-Methoxy-N,N-dimethyltryptamine | Fruit | RC |  | | (Shi et al., 2019) |
| 833 | Tryptamine derivatives | Cinnamoyl tyramine | Fruit | RC |  | | (Shi et al., 2019) |
| 834 | Tryptamine derivatives | L-Tryptamine | Fruit | RC |  | | (Shi et al., 2019) |
| 835 | Tryptamine derivatives | N-Acetyl-5-hydroxytryptamine | Fruit | RC |  | | (Shi et al., 2019) |
| 836 | Tryptamine derivatives | N-hydroxy tryptamine | Fruit | RC |  | | (Shi et al., 2019) |
| 837 | Tryptamine derivatives | serotonin | Fruit | RC |  | | (Shi et al., 2019) |
| 838 | Vitamins | 4-Pyridoxic acid O-hexoside | Fruit | RC |  | | (Shi et al., 2019) |
| 839 | Vitamins | All-trans-13,14-dihydroretinol | Fruit | RC |  | | (Shi et al., 2019) |
| 840 | Vitamins | Biotin | Fruit | RC |  | | (Shi et al., 2019) |
| 841 | Vitamins | D-Pantothenic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 842 | Vitamins | L-ascorbate | Fruit | RC |  | | (Shi et al., 2019) |
| 843 | Vitamins | Menaquinone (K2) | Fruit | RC |  | | (Shi et al., 2019) |
| 844 | Vitamins | Niacinamide | Fruit | RC |  | | (Shi et al., 2019) |
| 845 | Vitamins | Nicotinic Acid Methyl Ester (Methyl Nicotinate) | Fruit | RC |  | | (Shi et al., 2019) |
| 846 | Vitamins | Orotic acid | Fruit | RC |  | | (Shi et al., 2019) |
| 847 | Vitamins | Pantetheine | Fruit | RC |  | | (Shi et al., 2019) |
| 848 | Vitamins | Pyridoxine | Fruit | RC |  | | (Shi et al., 2019) |
| 849 | Vitamins | Pyridoxine 5'-phosphate | Fruit | RC |  | | (Shi et al., 2019) |
| 850 | Vitamins | Pyridoxine O-glucoside | Fruit | RC |  | | (Shi et al., 2019) |
| 851 | Vitamins | Riboflavin | Fruit | RC |  | | (Shi et al., 2019) |
| 852 | Vitamins | Vitamin D3 | Fruit | RC |  | | (Shi et al., 2019) |
| 853 | MAgnesium porphyrin | chlorophyll content | leaf | RC |  | | (Ma et al., 2021) |
| 854 | glycosides | Apigenin 7-O-hexoside | Leave | RC |  | | (Zhu et al., 2017) |
| 855 | glycosides | Diosmetin-7-O-(6-O-pentosyl\_x005f\_x0002\_rhamnoside) | Leave | RC |  | | (Zhu et al., 2017) |
| 856 | glycosides | Kaempferol-3-O-β-glucoside | Leave | RC |  | | (Zhu et al., 2017) |
| 857 | glycosides | Kaempferol-O-dihexoside | Leave | RC |  | | (Zhu et al., 2017) |
| 858 | glycosides | Kaempferol-O-trihexoside | Leave | RC |  | | (Zhu et al., 2017) |
| 859 | glycosides | Quercetin 3-O-β-glucoside | Leave | RC |  | | (Zhu et al., 2017) |
| 860 | glycosides | Quercetin-3-O-pentosyl\_x005f\_x0002\_rhamnoside | Leave | RC |  | | (Zhu et al., 2017) |
| 861 | glycosides | Quercetin-O-dihexoside | Leave | RC |  | | (Zhu et al., 2017) |
| 862 | phenolic acids | 3,4,5-Tri-O-caffeoylquinic acid | Leave | RC |  | | (Zhu et al., 2017) |
| 863 | phenolic acids | 3-O-p-Coumaroylquinic acid | Leave | RC |  | | (Zhu et al., 2017) |
| 864 | phenolic acids | 4-O-Caffeoyl-5-O-p\_x0002\_coumaroylquinic acid | Leave | RC |  | | (Zhu et al., 2017) |
| 865 | phenolic acids | 4-O-Feruloyl-5-O-caffeoylquinic acid | Leave | RC |  | | (Zhu et al., 2017) |
| 866 | phenolic acids | 5-O-Feruloylquinnic acid | Leave | RC |  | | (Zhu et al., 2017) |
| 867 | phenolic acids | 5-O-p-Coumaroylquinic acid | Leave | RC |  | | (Zhu et al., 2017) |
| 868 | phenolic acids | Caffeoylquinic acid | Leave | RC |  | | (Zhu et al., 2017) |
| 869 | phenolic acids | Cis-5-O-feruloylquinnic acid | Leave | RC |  | | (Zhu et al., 2017) |
| 870 | phenolic acids | Quinic acid | Leave | RC |  | | (Zhu et al., 2017) |

Abbreviation: AC, authentic content; RC, relative content

**Table S10 Candidate post-harvest traits for QTL mapping**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Traits** | **Character** | **Description** | **Reference** |
| 1 | Ash determination | QN | % | (Oguz and Erdogan, 2016) |
| 2 | color of dried fruit | QL | yellow | (Shi et al., 2012) |
|  |  |  | red |  |
|  |  |  | amaranthine |  |
|  |  |  | dark red |  |
|  |  |  | black |  |
| 3 | Decay index | QN |  | (Ge et al., 2008) & (Ali et al., 2010) |
| 4 | Decay percentage | QN | % | (Ali et al., 2010) |
| 5 | Dehydration time of fresh fruit | QN | h | (Ministry of Agriculture of China, 2013) |
| 6 | dry fruit color | QN | R value | (Yao et al., 2018a) |
|  |  |  | G value |  |
|  |  |  | B value |  |
| 7 | dry fruit length | QN | cm | (Yao et al., 2018a) |
| 8 | dry fruit weight | QN | cm | (Yao et al., 2018a) |
| 9 | dry fruit width | QN | cm | (Yao et al., 2018a) |
| 10 | fruit firmness | QN | N | (Mahfoudhi et al., 2014)  (Ali et al., 2010) |
| 11 | Fruit Moisture ratio | QN | % | (Ge et al., 2008) |
| 12 | Juice rate of fresh fruit | QN | % | (Wang et al., 2016) |
| 13 | pH value | QN |  | (Oguz and Erdogan, 2016) |
| 14 | ratio of dried and fresh fruit | QN |  | (Shi et al., 2012) |
| 15 | Sensory evaluation-flavor | PQ | (score, 0-2)bad | (Mahfoudhi et al., 2014) |
|  |  |  | (score, 3\_5)fair |  |
|  |  |  | (score, 6\_8)good |  |
|  |  |  | (score, 9)excellent |  |
| 16 | Sensory evaluation-overall acceptability | PQ | (score, 0-2)bad | (Mahfoudhi et al., 2014) |
|  |  |  | (score, 3\_5)fair |  |
|  |  |  | (score, 6\_8)good |  |
|  |  |  | (score, 9)excellent |  |
| 17 | Sensory evaluation-pulp color | PQ | (score, 0-2)bad | (Mahfoudhi et al., 2014) |
|  |  |  | (score, 3\_5)fair |  |
|  |  |  | (score, 6\_8)good |  |
|  |  |  | (score, 9)excellent |  |
| 18 | Sensory evaluation-texture | PQ | (score, 0-2)bad | (Mahfoudhi et al., 2014) |
|  |  |  | (score, 3\_5) fair |  |
|  |  |  | (score, 6\_8) good |  |
|  |  |  | (score,9) excellent |  |
| 19 | taste of fresh fruit | PQ | sweet | (Shi et al., 2012) |
|  |  |  | slightly sweet |  |
|  |  |  | slightly bitter |  |
| 20 | The degree of difficulty in drying | PQ | easy | (Shi et al., 2012) |
|  |  |  | intermediate |  |
|  |  |  | difficult |  |
| 21 | tolerance of storage | PQ | strong | (Shi et al., 2012) |
|  |  |  | intermediate |  |
|  |  |  | weak |  |
| 22 | Water soluble dry matter | QL | % | (Oguz and Erdogan, 2016) |
| 23 | Weight loss percentage | QL | % | (Mahfoudhi et al., 2014) & (Ali et al., 2010) |

Abbreviation: QN, quantitative characteristics; QL, qualitative characteristics; PQ, pseudo-qualitative characteristics.

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