Supplemental Table 1. Number of reported chemicals and bioactive compounds found in *Beta vulgaris var. cicla and flavescens* according to categories and plant’s parts.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Categories | Total reported compounds | Percentage of total  included  compounds | Studied part of the plant (number of papers reporting) | | | | | | | | | | | | | | | |
| Leaves | | Stems | | Stalks | | Petioles | | Seeds | | Roots | | Tissue | | NR | |
| Ql | Qn | Ql | Qn | Ql | Qn | Ql | Qn | Ql | Qn | Ql | Qn | Ql | Qn | Ql | Qn |
| Alcohols | 1 | 0.5 | 1 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Aldehydes | 3 | 1.6 | 1 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Alkanes | 5 | 2.6 | 1 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Anthocyanins | 1 | 0.5 | 1 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ash | 1 | 0.5 | 1 | 1 |  |  |  |  |  |  |  |  |  |  | 1 | 1 |  |  |
| Betalains | 38 | 19.9 | 1 |  |  |  |  |  | 2 | 2 |  |  |  |  |  |  |  |  |
| Carbohydrates, soluble sugars and total polyols | 14 | 7.3 | 1 | 1 |  |  |  |  |  |  |  |  |  |  | 1 | 1 |  |  |
| Carboxylic Acids | 6 | 3.1 | 1 | 1 |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  |
| Carotenoids | 4 | 2.1 | 1 | 1 |  |  |  |  |  |  |  |  |  |  | 1 | 1 | 1 |  |
| Enzymes | 2 | 1 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Fat, lipids, fatty acids and fatty related compounds | 30 | 15.7 | 2 | 1 |  |  |  |  |  |  |  |  |  |  | 1 | 1 |  |  |
| Fibres | 3 | 1.6 | 1 | 1 |  |  |  |  |  |  |  |  |  |  | 1 | 1 |  |  |
| Flavonoids and derivates | 22 | 11.5 | 8 | 5 | 1 | 1 |  |  |  |  | 1 | 1 | 1 | 1 | 1 | 1 | 1 |  |
| Heterocyclics | 1 | 0.5 | 1 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ketones | 3 | 1.6 | 1 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Minerals/Trace elements/Metals | 11 | 5.8 | 7 | 7 |  |  | 1 | 1 | 1 | 1 |  |  |  |  | 1 | 1 | 1 |  |
| Non flavonoids phenols/phenolics | 21 | 11 | 7 | 6 | 1 | 1 |  |  |  |  | 3 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| Pigments | 3 | 3 | 4 | 3 |  |  |  |  |  |  |  |  |  |  | 1 | 1 |  |  |
| Proteins | 2 | 1 | 3 | 3 |  |  |  |  |  |  |  |  |  |  | 1 | 1 |  |  |
| Tannins | 1 | 0.5 | 1 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Terpenes | 16 | 8.4 | 2 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Vitamins | 1 | 0.5 | 6 | 6 |  |  | 1 | 1 |  |  |  |  |  |  | 1 | 1 | 1 | 1 |
| Others | 2 | 1 | 1 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Supplemental Table 2. Nutrients and phytochemicals compounds and their biological activity reported in *Beta vulgaris var. cicla and flavescen*s

| **No** | **PubChem**  **CID** | **Compound name** | **Variety - cultivar** | **Plant’s part** | **Author, publication year** | **Biological Activity** | **Author, publ. year of Biological activity** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Alcohols (1) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 1 | 1254 | Menthol | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
|  |  |  |  |  |  |  |  |
| Aldehydes (3) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 2 | 240 | Benzaldehyde | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 3 | 8175 | Decanal | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 4 | 31289 | Nonanal | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
|  |  |  |  |  |  |  |  |
| Alkanes (5) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 5 | 14257 | n-undecane | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 6 | 8182 | n-dodecane | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 7 | 12388 | n.tridecane | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 8 | 12389 | n-tetradecane | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 9 | 12391 | n-pentadecane | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
|  |  |  |  |  |  |  |  |
| Anthocyanins (1) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 10 |  | Total Anthocyanins Content | Cicla | Leaves | Sacan O. et al., 2010 |  |  |
|  |  |  |  |  |  |  |  |
| Ash (1) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 11 | NA | Ash | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 |  |  |
| Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
|  |  |  |  |  |  |  |  |
| Betalains (38) | | | | | | | |
|  |  |  |  |  |  |  |  |
|  |  | *Betaxanthins (bx):* (26) |  |  |  |  |  |
| 12 | 135871118 | 3-methoxytyramine-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| 3-methoxytyramine-bx | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 13 | NI | Alanine-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Alanine-bx | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 14 | NI | Asparagine-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Asparagine-bx (vulgaxanthin III) | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 15 | 135438592 | Aspartic acid-bx (miraxanthin II) | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 16 | 135438589 | Dopamine-bx (dopaxanthin) | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 17 | 135959620 | Dopamine-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Dopamine-bx (miraxanthin V) | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 18 | NI | Ethanolamine-bx | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 19 | NI | ᵞ-aminobutyric acid-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| ᵞ-aminobutyric acid-bx | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 20 | 135438600 | Glutamic acid-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Glutamic acid-bx (vulgaxanthin II) | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 21 | 135438599 | Glutamine-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Glutamine-bx (vulgaxanthin I) | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 22 | 135809744 | Glycine-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Glycine-bx (portulacaxanthin III) | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 23 | NI | Histamine-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Histamine-bx | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 24 | 5281207 | Histidine-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Histidine-bx (muscaaurin VII) | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 25 | NI | Isoleucine-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Isoleucine-bx | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 26 | NI | Leucine-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Leucine-bx (vulgaxanthin IV) | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 27 | NI | Lysine-bx | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 28 | NI | Methionine-bx | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 29 | NI | Phenylalanine-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Phenylalanine-bx | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 30 | 57513848 | Proline-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Proline-bx (indicaxanthin) | Cicla – Bright Lights (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 31 | NI | Serine-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Serine-bx | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 32 | NI | Threonine-bx | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 33 | 136728070 | Tryptophan-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Tryptophan-bx | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 34 | 135438593 | Tyramine-betaxhantine | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Tyramine-bx (miraxanthin III) | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 35 | 135438597 | Tyrosine-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Tyrosine-bx (portulacaxanthin II) | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 36 | NI | Valine-bx | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Valine-bx | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
| 37 | NA | Total Betaxanthins | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| Total Betaxanthins | Cicla – Bright Lights  (Yellow) | Petioles | Kugler F. et al., 2007 |  |  |
|  |  | *Betacyanins:* (10) |  |  |  |  |  |
| 38 | 6324775 | Betacyanin | Cicla | Leaves | Ali B. et al, 2009 | Antioxidant activity | Escribano J. et al, 1998  Cai Y. et al, 2003 |
| 39 | 135449343 | Betanidin | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| 40 | NI | Betanidin-monoferuloyl-5-O-â-diglucoside | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| 41 | 12300103 | Betanin | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| 42 | 135612764 | Isobetanidin | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| 43 | NI | Isobetanidin-monoferuloyl-5-O-â-diglucoside | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| 44 | 6325438 | Isobetanin | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| 45 | NI | Isolampranthin II | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| 46 | 11953909 | Lampranthin II | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| 47 | 101056997 | Phyllocactin | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| 48 | NA | Total Betacyanins | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
| 49 | NA | Total Betalains | Cicla – Bright Lights  (4 different colours) | Petioles | Kugler F. et al., 2004 |  |  |
|  |  |  |  |  |  |  |  |
| Carbohydrates, soluble sugars and total polyols (14) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 50 | 439195 | Arabinose | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 51 | 5984 | Fructose | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 52 | 6036 | Galactose | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 53 | 5793 | Glucose | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 54 | 892 | Inositol | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 55 | 6251 | Mannitol | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 56 | 439242 | Raffinose | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 57 | 25310 | Rhamnose | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 58 | 5988 | Sucrose | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 59 | NA | Total polyols | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 60 | NA | Total soluble sugars | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 61 | NA | Sum of sugars | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 62 | NA | Total sugars content | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 63 | NA | Total carbohydrates | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 |  |  |
| Total available carbohydrates | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
|  |  |  |  |  |  |  |  |
| Carboxylic Acids (6) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 64 | 6430689 | Exo-fenchyl acetate | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 65 | 10430 | Isovaleric acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 66 | 8091 | Methyl octanoate | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 67 | 5352115 | N-transferuloyl 3-O-methyldopamine | Cicla | Seeds | Kim Y. et al., 2003 |  |  |
| 68 | 5280537 | N-trans-feruloyl tyramine | Cicla | Seeds | Kim Y. et al., 2003 |  |  |
| 69 | 379 | Octanoic acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
|  |  |  |  |  |  |  |  |
| Carotenoids (4) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 70 | 5280489 | β-carotene | Flavescens - Berac and Charlotte | Leaves | Reif C. et al, 2013 | Precursors of vitamin A, carotenoids are valuable Antioxidants.  A high dietary intake and increased blood concentrations have been associated with a  decrease in the risk of degenerative diseases such as cardiovascular diseases, specific types of cancer, age related macular degeneration and cataract formation. | Palozza and Krinsky, 1992  Granado et al., 2003; Finley,2005; Seifried et al., 2003; Tang et al., 2005b; Seddon et al., 1994; Brown et al., 1999; Chasan-Taber et al., 1999 |
| β-carotene | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 | Provides a vital role in the functioning of the visual system, and maintenance of cell function for growth and epithelial cellular integrity as well as production of red blood cells. | WHO, 2009 |
| β-carotene | Cicla | Leaves | Mzoughi Z. et al, 2019 | Carotenoids are the most effective singlet oxygen quenchers and can also scavenge peroxyl radicals |  |
| 71 | 5281243 | Lutein | Flavescens - Berac and Charlotte | Leaves | Reif C. et al, 2013 | Precursors of vitamin A, carotenoids are valuable Antioxidants.  A high dietary intake and increased blood concentrations have been associated with a  decrease in the risk of degenerative diseases such as cardiovascular diseases, specific types of cancer, age related macular degeneration and cataract formation. | Palozza and Krinsky, 1992  Granado et al., 2003; Finley,2005; Seifried et al., 2003; Tang et al., 2005b; Seddon et al., 1994; Brown et al., 1999; Chasan-Taber et al., 1999 |
| 72 | 446925 | Lycopene | Cicla | Leaves | Mzoughi Z. et al, 2019 | Carotenoids are the most effective singlet oxygen quenchers and can also scavenge peroxyl radicals |  |
| 73 | NA | Total carotenoid content | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 | Phytopigments improve immune, detoxication and antioxidant systems of the human body, thus indirectly helping the prevention of disease. | Fiedor and Burda, 2014; Ferruzzi and Blakeslee, 2007 |
|  |  |  |  |  |  |  |  |
| Enzymes (2) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 74 | NI | Catalase | Cicla | Leaves | Dinçler A. et al. 2001 | Protects cells from oxidative Damage by converting highly reactive oxygen species into oxygen and water | Fridovich, I. et al. 1986  Galston, A.W et al. 1951 |
| 75 | NI | Polyphenol oxidase | Cicla - Red | Leaves | Gao ZJ, et al. 2009 | Antiviral and antioxidant properties, as well as the protective effect against damage from ultraviolet radiation  Potential involvement in the betalain biosynthetic pathway | Mayer A.M. et al. 2006  Steiner U. et al. 1999 |
|  |  |  |  |  |  |  |  |
| Fat, Lipids, fatty acids and fatty related compounds (30) | | | | | | | |
|  |  | *Fatty acids* (17) |  |  |  |  |  |
| 76 | 8892 | Caproic acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 77 | 3893 | Lauric acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 78 | 11005 | Myristic acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 79 | 13849 | Pentadecanoic acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 80 | 985 | Palmitic acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 81 | 445638 | Palmitoleic acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 82 | 10465 | Margaric acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 83 | 5281 | Stearic acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 84 | 445639 | Oleic acid | Cicla | Leaves | Mzoughi Z. et al, 2019 | Important in nervous cell construction and fundamental role in cardiovascular diseases prevention |  |
| 85 | 5280450 | Linoleic acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 86 | 5280934 | α-Linolenic acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 87 | 10467 | Arachidic acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 88 | 5282768 | Eicosenoic acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 89 | 6439848 | Eicosadienoic acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 90 | 8215 | Behenic acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 91 | 17085 | Tricosanoic acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 92 | 11197 | Lignoceric acid | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 93 | NA | Monounsaturated fatty acid (MUFA) | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 94 | NA | Polyunsaturated fatty acid (PUFA) | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 95 | NA | Saturated fatty acid (SFA) | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 96 | NA | Unsaturated/saturated ratio | Cicla | Leaves | Mzoughi Z. et al, 2019 | A significant unsaturated/saturated ratio (U/S) is regarded favourable for the reduction of serum cholesterol, atherosclerosis and prevention of heart diseases. |  |
|  |  | *Fatty related compounds* (3) |  |  |  |  |  |
| 97 | 28469 | 3-methyldodecane | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 98 | 5364475 | (E)-3-octen-1-ol | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 99 | 8050 | Methyl decanoate | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
|  |  | *Lipids* (5) |  |  |  |  |  |
| 100 | 6441487 | Phosphatidylcholine (PCH) | Cicla – Glatter Silber | Leaves | Zeller W. et al., 1977 |  |  |
| 101 | 46891780 | Phosphatidylethanolamine (PE) | Cicla – Glatter Silber | Leaves | Zeller W. et al., 1977 |  |  |
| 102 | 52927225 | Phosphatidylglycerol (PG) | Cicla – Glatter Silber | Leaves | Zeller W. et al., 1977 |  |  |
| 103 | NI | Digalactosyldiglyceride (DGG) | Cicla – Glatter Silber | Leaves | Zeller W. et al., 1977 |  |  |
| 104 | NI | Monogalactosyldiglyceride | Cicla – Glatter Silber | Leaves | Zeller W. et al., 1977 |  |  |
|  |  | *Fat* |  |  |  |  |  |
| 105 | NA | Total lipids | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 |  |  |
| Fat | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
|  |  |  |  |  |  |  |  |
| Fibres (3) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 106 | NA | Insoluble dietary fiber | Cicla | Leaves | Mzoughi Z. et al, 2019 | Promote the development and protects the beneficial intestinal Flora.  Decrease the menace of cardiovascular and coronary heart diseases. | Barreira et al., 2017 |
| 107 | NA | Soluble dietary fiber | Cicla | Leaves | Mzoughi Z. et al, 2019 | Promote the development and protects the beneficial intestinal Flora.  Decrease the menace of cardiovascular and coronary heart diseases. | Barreira et al., 2017 |
| 108 | NA | Crude fibers | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 | Togheter with protein enhances blood sugar regulation | Kolota et al., 2010; Ninfali and Angelino, 2013; Pyo et al., 2004; Sacan and Yanardag, 2010 |
| Total dietary fiber | Cicla | Leaves | Mzoughi Z. et al, 2019 | Promote the development and protects the beneficial intestinal Flora.  Decrease the menace of cardiovascular and coronary heart diseases. | Barreira et al., 2017 |
|  |  |  |  |  |  |  |  |
| Flavonoids and derivates (22) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 109 | NI | 2''-Oxylopyranosylvitexin | Flavescens | Leaves | Hala M. et al., 2019 |  |  |
| 110 | NI | 6,8-di-C-β-D-glucopyranosylapigenin (vecinin-II) | Flavescens | Leaves | Hala M. et al., 2019 |  |  |
| 111 | NI | Acacetin 8-C-β-D-glucopyranoside | Flavescens | Leaves | Hala M. et al., 2019 |  |  |
| 112 | NI | Acacetin 8-C-α-L-rhamnoside | Flavescens | Leaves | Hala M. et al., 2019 |  |  |
| 113 | 9064 | (+) Catechin | Cicla – Large white ribbed and CXS 2550 | Leaves and stems | Pyo ZH. et al., 2004 |  |  |
| 114 | NI | Glucopyranosyl-glucopyrasyl-rhamnetin | Cicla | Seeds | Gennari L, et al. 2011 |  |  |
| 115 | NI | Glucopyranosyl-xylosyl-rhamnetin | Cicla | Seeds | Gennari L, et al. 2011 |  |  |
| 116 | 5488387 | Isorhamnetin 3-gentiobioside | Cicla – Green and Yellow | Leaves | Gil MI. et al., 1998 | Antioxidant and free-radical scavenging activities, which play important roles in human nutrition. | Stähelin et al., 1991a,b |
| Isorhamnetin 3-gentiobioside | Cicla | Leaves | Ninfali P. et al., 2007 |  |  |
| 117 | 44258010 | Isorhamnetin 3-vicianoside | Cicla – Green and Yellow | Leaves | Gil MI. et al., 1998 | Antioxidant and free-radical scavenging activities, which play important roles in human nutrition. | Stähelin et al., 1991a,b |
| 118 | 5280863 | Kaempferol | Cicla – Large white ribbed and CXS 2550 | Leaves and stems | Pyo ZH. et al., 2004 |  |  |
| 119 | 9960512 | Kaempferol 3-gentiobioside | Cicla – Green and Yellow | Leaves | Gil MI. et al., 1998 | Antioxidant and free-radical scavenging activities, which play important roles in human nutrition. | Stähelin et al., 1991a,b |
| 120 | 5281672 | Myricetin | Cicla – Large white ribbed and CXS 2550 | Leaves and stems | Pyo ZH. et al., 2004 |  |  |
| 121 | 5280343 | Quercetin | Cicla – Large white ribbed and CXS 2550 | Leaves and stems | Pyo ZH. et al., 2004 |  |  |
| 122 | 5280805 | Rutin | Cicla | Leaves | Ninfali P. et al., 2007 |  |  |
| 123 | 5280441 | Apigenin 8-C-β-D-glucopyranoside (vitexin) | Flavescens | Leaves | Hala M. et al., 2019 | Promising antibacterial activity against most of the test bacterial strains. |  |
| 124 | 5280641 | Vitexin 2"-O-β-D-glucopyranoside | Cicla | Leaves | Kim I. et al., 2004 | Hepatoprotective activity |  |
| 125 | 5282151 | Vitexin 2''-O-rhamnoside | Cicla | Leaves | Ninfali P. et al., 2007 |  |  |
| 126 | 441381 | Vitexin 7-O-β-D-glucopyranoside | Cicla | Leaves | Kim I. et al., 2004 | Hepatoprotective activity |  |
| 127 | 101406315 | 2”-xylosylvitexin | Cicla – Green and Yellow | Leaves | Gil MI. et al., 1998 | Antioxidant and free-radical scavenging activities, which play important roles in human nutrition. | Stähelin et al., 1991a,b |
| Xylosylvitexin | Cicla | Seeds | Gennari L, et al. 2011 |  |  |
| 2''-O-Xylosylvitexin | Cicla | Leaves | Ninfali P. et al., 2007 |  |  |
| 128 | 44257736 | 6"-Malonyl-2"-xylosyl vitexin | Cicla – Green and Yellow | Leaves | Gil MI. et al., 1998 | Antioxidant and free-radical scavenging activities, which play important roles in human nutrition. | Stähelin et al., 1991a,b |
| 129 | NA | Total flavonoid content | Cicla – Green and Yellow | Leaves | Gil MI. et al., 1998 |  |  |
| Flavonoid content | Cicla – Large white ribbed and CXS 2550 | Leaves and stems | Pyo ZH. et al., 2004 |  |  |
| Total flavonoids | Cicla | Leaves | Sacan O. et al., 2010 |  |  |
| Total flavonoids | Cicla | Leaves, roots and seeds | Ninfali P. et al., 2013 | BVc is a rich source of flavonoid glycosides derived from apigenin, namely vitexin, vitexin-2-O-rhamnoside (VOR), vitexin-2-O-xyloside (VOX). These flavonoids are glycosides of the flavone apigenin, whose antitumor effects have been widely studied. | Plaumann et al., 1996  Sato et al., 1994  Lepley et al., 1997  Yang et al., 2012  Ninfali et al, 2007 |
| Flavonoids | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 | Phenolic compounds are also known to possess powerful radical scavenging properties against reactive oxygen species (ROS). | Stangeland et al., 2009 |
| Total flavonoid content | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 | The consumption of vegetables that are rich in phenols and flavonoids is associated with preventions of diseases caused by oxidative stress. | Slavin and Lloyd, 2012; Ballistreri et al., 2013 |
| Total flavonoid content | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 130 | NA | Total flavonols content | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
|  |  |  |  |  |  |  |  |
| Heterocyclics (1) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 131 | 11116492 | Cis-linalool oxide (furanoid) | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
|  |  |  |  |  |  |  |  |
| Ketones (3) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 132 | 9862 | 6-methyl-5-hepten-2-one | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 133 | 7410 | Acetophenone | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 134 | 2537 | Camphor | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
|  |  |  |  |  |  |  |  |
| Minerals/Trace elements/Metals (11) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 135 | 5460341 | Ca | Cicla – 11 cultivars | Leaves and stalks | Pokluda R. et al., 2002 |  |  |
| Ca | Cicla - Lukullus | Leaves | Dzida K. et al, 2008 |  |  |
| Ca | Cicla - 5 cultivars | Leaves | Kolota E. et al, 2010 |  |  |
| Ca | Cicla | Leaves | Bozokalfa MK. et al., 2011 |  |  |
| Ca | Cicla - Agila | Leaves | Colonna E. et al, 2016 |  |  |
| Ca | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 | Provides rigidity to the skeleton, and is vital in neuromuscular function, enzyme-mediated processes and blood clotting. | WHO, 2009 |
| Ca | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 |  |  |
| Ca | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 136 | 104730 | Co | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 | Trace elements have a crucial role in numerous enzyme reactions in which they generally participate as cofactors. | Fraga, 2005 |
| 137 | 23976 | Cr | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 | Trace elements have a crucial role in numerous enzyme reactions in which they generally participate as cofactors. | Fraga, 2005 |
| 138 | 23978 | Cu | Cicla | Leaves | Bozokalfa MK. et al., 2011 |  |  |
| Cu | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 |  |  |
| Cu | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 | Trace elements have a crucial role in numerous enzyme reactions in which they generally participate as cofactors. | Fraga, 2005 |
| Cu | Cicla | Leaves | Mzoughi Z. et al, 2019 | Major role in redox processes and are cofactors activating approximately 35 different enzymes |  |
| 139 | 23925 | Fe | Cicla | Leaves | Bozokalfa MK. et al., 2011 |  |  |
| Fe | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 | Oxygen carrier from lungs to body tissues, a transport medium for electrons within cells and as an integral part of important enzyme systems such as cytochromes. | Wessling-Resnick, 2000 |
| Fe | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 | Trace elements have a crucial role in numerous enzyme reactions in which they generally participate as cofactors. | Fraga, 2005 |
| Fe | Cicla | Leaves | Mzoughi Z. et al, 2019 | Major role in redox processes and are cofactors activating approximately 35 different enzymes |  |
| 140 | 5462222 | K | Cicla – 11 cultivars | Leaves and stalks | Pokluda R. et al., 2002 |  |  |
| K | Cicla - Lukullus | Leaves | Dzida K. et al, 2008 |  |  |
| K | Cicla - 5 cultivars | Leaves | Kolota E. et al, 2010 |  |  |
| K | Cicla | Leaves | Bozokalfa MK. et al., 2011 |  |  |
| K | Cicla - Agila | Leaves | Colonna E. et al, 2016 |  |  |
| K | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 |  |  |
| K | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 |  |  |
| K | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| Potassium | Cicla – Magenta sunset | Leaves | Singh H. et al, 2019 |  |  |
| 141 | 5462224 | Mg | Cicla – 11 cultivars | Leaves and stalks | Pokluda R. et al., 2002 |  |  |
| Mg | Cicla - Lukullus | Leaves | Dzida K. et al, 2008 |  |  |
| Mg | Cicla - 5 cultivars | Leaves | Kolota E. et al, 2010 |  |  |
| Mg | Cicla | Leaves | Bozokalfa MK. et al., 2011 |  |  |
| Mg | Cicla - Agila | Leaves | Colonna E. et al, 2016 |  |  |
| Mg | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 |  |  |
| Mg | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 |  |  |
| Mg | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 142 | 23930 | Mn | Cicla | Leaves | Bozokalfa MK. et al., 2011 |  |  |
| Mn | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 |  |  |
| Mn | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 | Trace elements have a crucial role in numerous enzyme reactions in which they generally participate as cofactors. | Fraga, 2005 |
| Mn | Cicla | Leaves | Mzoughi Z. et al, 2019 | Major role in redox processes and are cofactors activating approximately 35 different enzymes |  |
| 143 | 5360545 | Na | Cicla – 11 cultivars | Leaves and stalks | Pokluda R. et al., 2002 |  |  |
| Na | Cicla | Leaves | Bozokalfa MK. et al., 2011 |  |  |
| Na | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 |  |  |
| Na | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 |  |  |
| Na | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 144 | 5462309 | P | Cicla - Lukullus | Leaves | Dzida K. et al, 2008 |  |  |
| P | Cicla - 5 cultivars | Leaves | Kolota E. et al, 2010 |  |  |
| P | Cicla | Leaves | Bozokalfa MK. et al., 2011 |  |  |
| P | Cicla - Agila | Leaves | Colonna E. et al, 2016 |  |  |
| P | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 |  |  |
| P | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 |  |  |
| Phosphorus | Cicla – Magenta sunset | Leaves | Singh H. et al, 2019 |  |  |
| 145 | 23994 | Zn | Cicla | Leaves | Bozokalfa MK. et al., 2011 |  |  |
| Zn | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 | Plays an important role in more than 300 enzymes involved in synthesis and degradation of biomolecules, metabolism of other micronutrients as well as the immune system. | MacDonald, 2000 |
| Zn | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 | Trace elements have a crucial role in numerous enzyme reactions in which they generally participate as cofactors. | Fraga, 2005 |
| Zn | Cicla | Leaves | Mzoughi Z. et al, 2019 | Major role in redox processes and are cofactors activating approximately 35 different enzymes |  |
|  |  |  |  |  |  |  |  |
| Non-flavonoids phenols/phenolics (21) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 146 | 643387 | 2,4,5-Trihydroxybenzaldehyde | Cicla | Seeds | Gennari L, et al. 2011 | Chemopreventive agent against human leukemia | Tseng et al., 2001 |
| 147 | 70949 | 2,5-Dihydroxybenzaldehyde | Cicla | Seeds | Gennari L, et al. 2011 |  |  |
| 148 | 689043 | Caffeic acid | Cicla – Large white ribbed and CXS 2550 | Leaves and stems | Pyo ZH. et al., 2004 |  |  |
| Caffeic acid | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 | Phenolic compounds are also known to possess powerful radical scavenging properties against reactive oxygen species (ROS). | Stangeland et al., 2009 |
| 149 | 1794427 | Chlorogenic acid | Cicla – Large white ribbed and CXS 2550 | Leaves and stems | Pyo ZH. et al., 2004 |  |  |
| 150 | 445858 | Ferulic acid | Cicla – Large white ribbed and CXS 2550 | Leaves and stems | Pyo ZH. et al., 2004 |  |  |
| Ferulic acid | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 | Phenolic compounds are also known to possess powerful radical scavenging properties against reactive oxygen species (ROS). | Stangeland et al., 2009 |
| 151 | 370 | Gallic acid | Cicla – Large white ribbed and CXS 2550 | Leaves and stems | Pyo ZH. et al., 2004 |  |  |
| 152 | NI | Myricitrin acid | Cicla | Leaves | Mzoughi Z. et al, 2019 | Responsible for the antioxidant capacity (potent redox properties) and several biological activities | Bennett et al., 2003; Bogucka-Kocka,  Zidorn, Kasprzycka, Szymczak, & Szewczyk, 2016; Nouman et al.,  2016 |
| 153 | 637542 | p-Coumaric acid | Cicla – Large white ribbed and CXS 2550 | Leaves and stems | Pyo ZH. et al., 2004 |  |  |
| p-Coumaric acid | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 | Phenolic compounds are also known to possess powerful radical scavenging properties against reactive oxygen species (ROS). | Stangeland et al., 2009 |
| p-coumaric acid | Cicla | Leaves | Mzoughi Z. et al, 2019 | Responsible for the antioxidant capacity (potent redox properties) and several biological activities | Bennett et al., 2003; Bogucka-Kocka,  Zidorn, Kasprzycka, Szymczak, & Szewczyk, 2016; Nouman et al.,  2016 |
| 154 | NI | p-OH-benzoic | Cicla – Large white ribbed and CXS 2550 | Leaves and stems | Pyo ZH. et al., 2004 |  |  |
| 155 | 135 | p-Hydroxybenzoic acid | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 | Phenolic compounds are also known to possess powerful radical scavenging properties against reactive oxygen species (ROS). | Stangeland et al., 2009 |
| 156 | 72 | Protocatechuic acid | Cicla – Large white ribbed and CXS 2550 | Leaves and stems | Pyo ZH. et al., 2004 |  |  |
| Protocatechuic acid | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 | Phenolic compounds are also known to possess powerful radical scavenging properties against reactive oxygen species (ROS). | Stangeland et al., 2009 |
| 157 | NI | N-cis-feruloyl 3-O-methyldopamine | Cicla | Seeds | Kim Y. et al., 2003 |  |  |
| 158 | 6440659 | N-cis-feruloyl tyramine | Cicla | Seeds | Kim Y. et al., 2003 |  |  |
| 159 | 5281792 | Rosmarinic acid | Cicla | Leaves | Mzoughi Z. et al, 2019 | Responsible for the antioxidant capacity (potent redox properties) and several biological activities | Bennett et al., 2003; Bogucka-Kocka,  Zidorn, Kasprzycka, Szymczak, & Szewczyk, 2016; Nouman et al.,  2016 |
| 160 | 338 | Salicylic acid | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 | Phenolic compounds are also known to possess powerful radical scavenging properties against reactive oxygen species (ROS). | Stangeland et al., 2009 |
| 161 | 637775 | Sinapic acid | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 | Phenolic compounds are also known to possess powerful radical scavenging properties against reactive oxygen species (ROS). | Stangeland et al., 2009 |
| 162 | 10742 | Syringic acid | Cicla – Large white ribbed and CXS 2550 | Leaves and stems | Pyo ZH. et al., 2004 |  |  |
| 163 | 8468 | Vanillic acid | Cicla – Large white ribbed and CXS 2550 | Leaves and stems | Pyo ZH. et al., 2004 |  |  |
| Vanillic acid | Cicla | Seeds | Gennari L, et al. 2011 |  |  |
| 164 | NA | Total Phenolic acids | Cicla – Large white ribbed and CXS 2550 | Leaves and stems | Pyo ZH. et al., 2004 |  |  |
| 165 | NA | Total orthodiphenols content | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 166 | NA | Total Phenolics content | Cicla – Large white ribbed and CXS 2550 | Leaves and stems | Pyo ZH. et al., 2004 |  |  |
| Total phenols | Cicla | Leaves | Ninfali P. et al., 2007 |  |  |
| Total polyphenols | Cicla | Leaves | Ali B. et al, 2009 |  |  |
| Total phenolic compounds | Cicla | Leaves | Sacan O. et al., 2010 |  |  |
| Total phenols | Cicla | Seeds | Gennari L, et al. 2011 |  |  |
| Total phenols | Cicla | Leaves, roots and seeds | Ninfali P. et al., 2013 |  |  |
| Total phenols | Cicla - Agila | Leaves | Colonna E. et al, 2016 |  |  |
| Total phenolics | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 | Phenolic compounds are also known to possess powerful radical scavenging properties against reactive oxygen species (ROS). | Stangeland et al., 2009 |
| Total phenol content | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 | The consumption of vegetables that are rich in phenols and flavonoids is associated with preventions of diseases caused by oxidative stress. | Slavin and Lloyd, 2012; Ballistreri et al., 2013 |
| Total concentration of phenolics | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
|  |  |  |  |  |  |  |  |
| Pigments (3) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 167 | 6433192 | Chlorophyll a | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 | Phytopigments improve immune, detoxication and antioxidant systems of the human body, thus indirectly helping the prevention of disease. | Fiedor and Burda, 2014; Ferruzzi and Blakeslee, 2007 |
| Chlorophyll a | Cicla | Leaves | Mzoughi Z. et al, 2019 | Significant effects on oxidation, inflammation and wound healing.  Reduces free radicals, protects lymphocytes against oxidative DNA damage by H2O2 and prevents lipid peroxidation of LDL (). | İnanç,2011  Hsu et al., 2013 |
| 168 | 6450186 | Chlorophyll b | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 | Phytopigments improve immune, detoxication and antioxidant systems of the human body, thus indirectly helping the prevention of disease. | Fiedor and Burda, 2014; Ferruzzi and Blakeslee, 2007 |
| Chlorophyll b | Cicla | Leaves | Mzoughi Z. et al, 2019 | Significant effects on oxidation, inflammation and wound healing.  Reduces free radicals, protects lymphocytes against oxidative DNA damage by H2O2 and prevents lipid peroxidation of LDL (). | İnanç,2011  Hsu et al., 2013 |
| 169 | 6449992 | Total chlorophyll | Cicla | Leaves | Ali B. et al, 2009 |  |  |
| Chlorophyll contents | Cicla – Bressanne | Leaves | Moreira MR. et al., 2003 |  |  |
| Chlorophyll | Cicla - Verde da taglio | Leaves | Miceli A. et al., 2014 |  |  |
| Total chlorophylls | Cicla | Leaves | Mzoughi Z. et al, 2019 | Significant effects on oxidation, inflammation and wound healing.  Reduces free radicals, protects lymphocytes against oxidative DNA damage by H2O2 and prevents lipid peroxidation of LDL. | İnanç,2011  Hsu et al., 2013 |
|  |  |  |  |  |  |  |  |
| Proteins and aminoacides (2) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 170 | 614 | Proline | Cicla | Leaves | Sacan O. et al., 2010 | Is a intracellular nonenzymatic ROS scavenging molecule.  Proline provides protecting against stress by maintaining redox homeostasis.  Scavenges free radicals and ROS. | Xu et al., 2009  Hoque et al., 2008  Sharma and Dietz, 2006 |
| 171 | NA | Protein | Cicla - Agila | Leaves | Colonna E. et al, 2016 |  |  |
| Protein | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 | Togheter with dietary fiber enhances blood sugar regulation | Kolota et al., 2010; Ninfali and Angelino, 2013; Pyo et al., 2004; Sacan and Yanardag, 2010 |
| Protein | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
|  |  |  |  |  |  |  |  |
| Tannins (1) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 172 | NA | Total tannins content | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
|  |  |  |  |  |  |  |  |
| Terpenes and derivates (16) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 173 | NI | 3-hydroxy-5α,6α-epoxy-β-ionone | Cicla | Leaves | Kim I. et al., 2004 |  |  |
| 174 | 440968 | α-Pinene | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 175 | 17100 | α-Terpineol | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 176 | 111037 | α-terpinyl acetate | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 177 | 5281515 | β-caryophyllene | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 178 | 9895 | β-cyclocitral | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 179 | 14896 | β-Pinene | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 180 | 7439 | Carvone | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 181 | 8842 | Citronellol | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 182 | 443181 | Cis-dihydrocarvone | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 183 | 688492 | (+)-Dehydrovomifoliol | Cicla | Leaves | Kim I. et al., 2004 |  |  |
| 184 | 638014 | (E)-β-ionone | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 185 | 637566 | Geraniol | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 186 | 22311 | Limonene | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 187 | 6549 | Linalool | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
| 188 | 29025 | Verbenone | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
|  |  |  |  |  |  |  |  |
| Vitamins (1) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 189 | 54670067 | Vitamin C | Cicla – Green and Yellow | Leaves | Gil MI. et al., 1998 |  |  |
| Vitamin C | Cicla – 11 cultivars | Leaves | Pokluda R. et al., 2002 |  |  |
| Ascorbic acid | Cicla – Bressanne | Leaves | Moreira MR. et al., 2003 |  |  |
| Vitamin C | Cicla - Lukullus | Leaves | Dzida K. et al, 2008 |  |  |
| Vitamin C | Cicla - 5 cultivars | Leaves | Kolota E. et al, 2010 |  |  |
| Ascorbic acid | Cicla - Verde da taglio | Leaves | Miceli A. et al., 2014 |  |  |
| Total ascorbic acid | Cicla - Agila | Leaves | Colonna E. et al, 2016 |  |  |
| Ascorbic acid | Cicla - Fordhook Giant | Not specified | Moyo M. et al, 2018 | Electron donor for enzymes involved in collagen hydroxylation, carnitine biosynthesis and tyrosine metabolism, potent antioxidant. | Prockop and Kivirikko, 1995 |
| Vitamin C | Cicla - Verca F1 hybrid | Tissue (leaves and stems) | Ivanovic L. et al, 2019 | Water-soluble vitamin which has a very powerful antioxidant capacity |  |
| 190 | 5284607 | Vitamin K1 (Phylloquinone) | Not reported | Not specified | Ferland G. et al, 1992 | In addition to its role in hemostasis, vitamin K is necessary for the synthesis of several proteins not involved in blood coagulation. |  |
|  |  |  |  |  |  |  |  |
| Other compounds (2) | | | | | | | |
|  |  |  |  |  |  |  |  |
| 191 | 637563 | (E)-anethole | Cicla | Leaves | Mzoughi Z. et al, 2019 | Potent antimicrobial properties, against bacteria, yeast, and fungi. | De, De, Sen, &  Banerjee, 2002 |
| 192 | 14485987 | Δ8,9-dehydro-4-hydroxythymol dimethylether | Cicla | Leaves | Mzoughi Z. et al, 2019 |  |  |
|  |  |  |  |  |  |  |  |