Supplementary Material

**An effective workflow for differentiating the same genus herbs of** ***Chrysanthemum morifolium* flower and *Chrysanthemum indicum* flower**

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**1. Supplementary Figures**





**(4)**

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**Supplementary Figure 1.** UV spectrum of standards (1, 3) and analytes (2, 4) in sample solution of *C. morifolium* flower.



**(A)**



**(B)**



**(C)**



**(D)**

**Supplementary Figure 2** Extracted ion chromatograms of *Chrysanthemum morifolium* flower in negative mode (A) and positive ion mode (B); *Chrysanthemum indicum* flower in negative ion mode (C) and positive ion mode (D). (1) Neochlorogenic acid; (2) Chlorogenic acid; (3) Cryptochlorogenic acid; (4) Coffeic acid; (5) Luteolin-7*-O-*rutinoside; (6) Luteolin-7-*O*-glucoside; (7) Luteolin-7-*O*- glucuronside; (9) isochlorogenic acid B; (10) isochlorogenic acid A; (11) Apigenin-7-*O*-glucoside; (13) isochlorogenic acid C; (15) Diosmetin-7-*O*-glucoside; (16) Apigenin-7- *O*-6"-malonylglucoside; (18) Linarin.

**2. Supplementary Tables**

**Supplementary Table 1. Repeatability of the analytes in *C. morifolium* flower (n=9)**

|  |  |  |  |
| --- | --- | --- | --- |
| Level | Weight(mg) | SSDMC- Percent Content (%) | ESM- Percent Content (%)  |
|  | C9 | C10 | C11 | C13 | C18 | C2  | C6 | C9 | C10 | C11 | C13 | C18 |
| Low | 125.0 | 0.077  | 0.728  | 0.312  | 0.753  | 0.027  | 0.490  | 0.318 | 0.077 | 0.735 | 0.315 | 0.768 | 0.027 |
| 125.2 | 0.072  | 0.709  | 0.317  | 0.742  | 0.026  | 0.491  | 0.314 | 0.071 | 0.715 | 0.32 | 0.757 | 0.026 |
| 125.1 | 0.077  | 0.700  | 0.316  | 0.746  | 0.028  | 0.487  | 0.312 | 0.076 | 0.705 | 0.321 | 0.761 | 0.028 |
| Medium | 250.1 | 0.074  | 0.723  | 0.318  | 0.746  | 0.025  | 0.495  | 0.307 | 0.073 | 0.728 | 0.321 | 0.768 | 0.025 |
| 250.1 | 0.075  | 0.718  | 0.319  | 0.766  | 0.026  | 0.486  | 0.309 | 0.074 | 0.723 | 0.324 | 0.781 | 0.026 |
| 250.0 | 0.077  | 0.715  | 0.320  | 0.768  | 0.026  | 0.489  | 0.311 | 0.076 | 0.721 | 0.325 | 0.783 | 0.026 |
| High | 375.1 | 0.071  | 0.720  | 0.320  | 0.769  | 0.029  | 0.492  | 0.315 | 0.07 | 0.725 | 0.323 | 0.784 | 0.029 |
| 375.1 | 0.072  | 0.718  | 0.322  | 0.739  | 0.028  | 0.493  | 0.311 | 0.071 | 0.723 | 0.325 | 0.754 | 0.028 |
| 375.2 | 0.075  | 0.721  | 0.321  | 0.724  | 0.029  | 0.491  | 0.315 | 0.074 | 0.728 | 0.324 | 0.746 | 0.029 |
| RSD% |  | 3.2  | 1.1  | 1.0  | 2.0  | 5.4 | 0.6  | 1.1  | 3.4  | 1.2  | 1.0  | 1.8  | 5.4 |

**Supplementary Table 2. Repeatability of the analytes in *C. morifolium* flower**

|  |  |  |  |
| --- | --- | --- | --- |
| Level | Weight(mg) | SSDMC- Percent Content (%) | ESM- Percent Content (%)  |
|  | C9 | C10 | C13 | C18 | C2  | C6 | C9 | C10 | C13 | C18 |
| Low | 125.0 | 0.12 | 0.105 | 0.172 | 0.443 | 0.242 | 0.439 | 0.119 | 0.103 | 0.17 | 0.445 |
| 125.0 | 0.121 | 0.104 | 0.173 | 0.441 | 0.244 | 0.437 | 0.12 | 0.102 | 0.171 | 0.445 |
| 125.1 | 0.123 | 0.104 | 0.178 | 0.441 | 0.242 | 0.44 | 0.121 | 0.102 | 0.176 | 0.445 |
| Medium | 250.1 | 0.12 | 0.106 | 0.178 | 0.419 | 0.243 | 0.441 | 0.119 | 0.103 | 0.176 | 0.422 |
| 250.0 | 0.121 | 0.106 | 0.18 | 0.412 | 0.243 | 0.442 | 0.119 | 0.104 | 0.177 | 0.415 |
| 250.0 | 0.125 | 0.106 | 0.184 | 0.422 | 0.244 | 0.44 | 0.123 | 0.104 | 0.182 | 0.425 |
| High | 375.0 | 0.117 | 0.102 | 0.175 | 0.395 | 0.239 | 0.427 | 0.116 | 0.1 | 0.173 | 0.398 |
| 375.1 | 0.118 | 0.103 | 0.177 | 0.401 | 0.241 | 0.433 | 0.117 | 0.101 | 0.175 | 0.404 |
| 375.0 | 0.119 | 0.104 | 0.178 | 0.400 | 0.242 | 0.432 | 0.118 | 0.101 | 0.176 | 0.403 |
| RSD% |  | 1.9 | 1.3 | 2.0 | 4.6 | 0.6 | 1.2 | 1.9 | 1.3 | 2 | 4.5 |

**Supplementary Table 3. Intermediate Precision of analytes in *C. morifolium* flower (CM) and *C. indicum* flower (CI)-Different Days, Different Analysts (n=9)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **Level** | **Weight (mg)** | **C2****(%)**  | **RSD%** | **C6****(%)** | **RSD%** | **C9****(%)** | **RSD%** | **C10****(%)** | **RSD%** | **C11****(%)** | **RSD%** | **C13****(%)** | **RSD%** | **C18****(%)** | **RSD%** |
| **SSDMC** |
| **CM** | Days | 250.2 | 0.493 | 2.8 | 0.322 | 2.7 | 0.077 | 3.6 | 0.724 | 3.0 | 0.324 | 2.9 | 0.773 | 2.6 | 0.024 | 4.8 |
| Analysts | 250.1 | 0.489 | 0.7 | 0.318 | 1.3 | 0.075 | 2.6 | 0.716 | 1.2 | 0.320 | 1.6 | 0.762 | 1.5 | 0.023 | 3.8 |
| **CI** | Days | 250.1 | 0.235 | 1.3 | 0.116 | 1.8 | 0.1 | 1.7 | 0.428 | 1.8 | - | - | 0.165 | 1.9 | 0.451 | 1.9 |
| Analysts | 250.0 | 0.238 | 1.2 | 0.115 | 1.7 | 0.099 | 1.1 | 0.426 | 1.1 | - | - | 0.164 | 1.2 | 0.448 | 1.2 |
| **ESM** |
| **CM** | Days | 250.2 | 0.493 | 2.8 | 0.322 | 2.7 | 0.075 | 2.8 | 0.726 | 3.0 | 0.323 | 2.9 | 0.775 | 2.6 | 0.027 | 4.9 |
| Analysts | 250.1 | 0.489 | 0.7 | 0.318 | 1.3 | 0.073 | 2.7 | 0.718 | 1.2 | 0.32 | 1.2 | 0.765 | 1.4 | 0.026 | 2.7 |
| **CI** | Days | 250.1 | 0.235 | 1.3 | 0.116 | 1.8 | 0.101 | 1.1 | 0.428 | 1.5 | - | - | 0.165 | 1.8 | 0.445 | 1.9 |
| Analysts | 250.0 | 0.238 | 1.2 | 0.115 | 1.7 | 0.101 | 1.2 | 0.427 | 1.1 | - | - | 0.164 | 1.2 | 0.444 | 1.2 |

**Supplementary Table 4. Intermediate Precision of analytes in *C. morifolium* flower–Different Equipments and columns**

|  |  |  |  |
| --- | --- | --- | --- |
| Level | Weight (mg) | SSDMC- Percent Content (%) | ESM- Percent Content (%)  |
| C9 | C10 | C11 | C13 | C18 | C2  | C6 | C9 | C10 | C11 | C13 | C18 |
| Agilent 1260 | Phenomenex\* | 0.073 | 0.722 | 0.311 | 0.764 | 0.026 | 0.491 | 0.319 | 0.076 | 0.719 | 0.318 | 0.761 | 0.023 |
| Phenomenex | 0.071 | 0.717 | 0.323 | 0.747 | 0.026 | 0.481 | 0.311 | 0.075 | 0.709 | 0.310 | 0.744 | 0.022 |
| Shimadzu20A | Phenomenex\* | 0.076 | 0.701 | 0.318 | 0.742 | 0.025 | 0.476 | 0.311 | 0.074 | 0.693 | 0.310 | 0.739 | 0.022 |
| Phenomenex | 0.073 | 0.728 | 0.324 | 0.770 | 0.027 | 0.493 | 0.323 | 0.078 | 0.715 | 0.323 | 0.767 | 0.024 |
| RSD% |  | 2.8 | 1.6 | 1.9 | 1.8 | 3.6 | 1.7 | 2.0 | 2.4 | 1.6 | 2.0 | 1.8 | 3.6 |

Phenomenex\* and Phenomenex were columns from the same model but different batches.

**Supplementary Table 5. Intermediate Precision of analytes in *C. indicum* flower–Different Equipments and columns**

|  |  |  |  |
| --- | --- | --- | --- |
| Level | Weight (mg) | SSDMC-Percent Content (%) | ESM- Percent Content (%)  |
| C9 | C10 | C11 | C13 | C18 | C2  | C6 | C9 | C10 | C11 | C13 | C18 |
| Agilent 1260 | Phenomenex\* | 0.102 | 0.43 | 0.176 | 0.457 | 0.102 | 0.248 | 0.114 | 0.1 | 0.429 | 0.175 | 0.461 | 0.248 |
| Phenomenex | 0.094 | 0.4 | 0.166 | 0.461 | 0.094 | 0.241 | 0.112 | 0.094 | 0.408 | 0.168 | 0.457 | 0.241 |
| Shimadzu20A | Phenomenex\* | 0.1 | 0.431 | 0.168 | 0.444 | 0.1 | 0.235 | 0.113 | 0.098 | 0.423 | 0.169 | 0.45 | 0.235 |
| Phenomenex | 0.099 | 0.42 | 0.162 | 0.437 | 0.099 | 0.234 | 0.113 | 0.098 | 0.42 | 0.161 | 0.441 | 0.234 |
| RSD% |  | 3.7 | 3.4 | 3.5 | 2.5 | 3.7 | 2.6 | 0.9 | 2.6 | 2.1 | 3.3 | 2 | 2.6 |

Phenomenex\* and Phenomenex were columns from the same model but different batches

**Supplementary Table 6. The results of recovery tests of analytes in *C. morifolium* flower (n=9)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Analytes | Original(ug) | Spiked(ug) | ESM | SSDMC |
| Found(ug) | Recovery(%) | RSD% | Found(ug) | Recovery(%) | RSD% |
| Chlorogenic acid | 613.5 | 285.8 | 887.2 | 95.8 | 3.1  |  |  |  |
| 613.3 | 571.6 | 1177.9 | 98.8 |  |  |  |
| 614.0 | 857.4 | 1487.4 | 101.9 |  |  |  |
| luteolin-7*-O-*β-D-glucoside | 386.9 | 196.5 | 578.4 | 97.5 | 1.4  |  |  |  |
| 386.8 | 393.0 | 775.4 | 98.9 |  |  |  |
| 387.2 | 589.4 | 978.4 | 100.3 |  |  |  |
| 3,4-di*-O-*caffeoylquinic acid | 92.6 | 48.2 | 139.4 | 96.9 | 1.7  | 138.8  | 95.8 | 3.1  |
| 92.6 | 96.5 | 188.2 | 99.1 | 187.9  | 98.8 |
| 92.7 | 144.7 | 237.8 | 100.2 | 240.1  | 101.9 |
| 3,5-di*-O-*caffeoylquinic acid | 906.4 | 449.2 | 1343.3 | 97.2 | 1.7  | 1344.4  | 97.5 | 1.4  |
| 906.2 | 898.5 | 1796.0 | 99.0 | 1794.8  | 98.9 |
| 907.2 | 1347.7 | 2263.4 | 100.6 | 2258.9  | 100.3 |
| Apigenin-7*-O-*β-D-glucoside | 404.4 | 205.7 | 604.6 | 97.3 | 1.1  | 603.7  | 96.9 | 1.7  |
| 404.3 | 411.4 | 808.9 | 98.4 | 812.0  | 99.1 |
| 404.7 | 617.0 | 1018.3 | 99.4 | 1022.9  | 100.2 |
| 4,5-di*-O-*caffeoylquinic acid | 972.8 | 488.5 | 1432.8 | 94.2 | 1.7  | 1440.8  | 95.8 | 2.5  |
| 972.5 | 977.0 | 1913.1 | 96.3 | 1922.1  | 97.2 |
| 973.6 | 1465.6 | 2403.0 | 97.5 | 2448.0  | 100.6 |
| linarin | 31.3 | 15.0 | 45.6 | 95.3 | 2.6  | 45.8  | 96.4 | 1.6  |
| 31.3 | 30.1 | 60.8 | 98.0 | 60.9  | 98.4 |
| 31.3 | 45.1 | 76.5 | 100.3 | 76.1  | 99.4 |

**Supplementary Table 7. The results of recovery tests of analytes in *C. indicum* flower (n=9)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Analytes | Original(ug) | Spiked(ug) | ESM | SSDMC |
| Found(ug) | Recovery(%) | RSD% | Found(ug) | Recovery(%) | RSD% |
| Chlorogenic acid | 559.2 | 94.5 | 649.2 | 95.3 | 3.2  |  |  |  |
| 558.7 | 189.0 | 746.0 | 99.1 |  |  |  |
| 574.8 | 283.5 | 862.7 | 101.6 |  |  |  |
| luteolin-7*-O-*β-D-glucoside | 302.5 | 135.0 | 431.9 | 95.9 | 4.4 |  |  |  |
| 302.2 | 270.0 | 579.7 | 102.7 |  |  |  |
| 311.0 | 405.0 | 733.2 | 104.3 |  |  |  |
| 3,4-di*-O-*caffeoylquinic acid | 151.7 | 65.8 | 214.7 | 95.8 | 4.6 | 216.8 | 99.0 | 3.8  |
| 151.6 | 131.5 | 287.0 | 103.0 | 290.5 | 105.2 |
| 156.0 | 197.3 | 362.2 | 104.5 | 365.8 | 106.4 |
| 3,5-di*-O-*caffeoylquinic acid | 127.4 | 81.0 | 207.0 | 98.4 | 3.2 | 207.5 | 98.0 | 3.7  |
| 127.3 | 162.0 | 295.5 | 103.9 | 296.9 | 104.2 |
| 130.9 | 243.0 | 384.4 | 104.3 | 385.2 | 104.6 |
| 4,5-di*-O-*caffeoylquinic acid | 545.7 | 367.5 | 904.7 | 97.6 | 2.3 | 895.3 | 96.5 | 2.0  |
| 545.5 | 735.0 | 1289.5 | 101.2 | 1279.7 | 99.4 |
| 561.2 | 1102.5 | 1685.2 | 101.9 | 1667.7 | 100.3 |
| linarin | 216.1 | 115.8 | 326.5 | 95.4 | 4.0 | 323.2 | 96.5 | 2.6  |
| 215.9 | 231.5 | 451.0 | 101.6 | 447.7 | 99.6 |
| 222.1 | 347.3 | 578.8 | 102.8 | 573.3 | 101.6 |

**Supplementary Table 8. The factors and levels in robustness test**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | Factors | Normal  | -1 level  | +1 level |
| 1 | Flow rate (FR) | 1.0ml/min | -0.1 ml/min | +0.1 ml/min |
| 2 | Wave length (WL) | 327nm | -2 nm | +2 nm |
| 3  | Injection volume (IV) | 20ul | -5ul | +5ul |
| 4 | Acid concentration | 0.1% HAC | -0.02% HAC | +HAC |
| 5 | Col.temp.( CT) | 25℃ | -2℃ | +2℃ |
| 6 | Time of gradient (TP) | 0/10/14/20/35/40/45/55 min  | -1min | +1min |
| 7 | Ratio of organic phase(MP1~MP7)  | 10/18/19/19/20/22/25/35% | -1% | 1% |

**Supplementary Table 9. Percent Content (%) of investigated components in *C. morifolium* flower by SSDMC method**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | C2 | C6 | C9 | C10 | C11 | C13 | C18 | C7 | C15 | C16 | Caf- | Fla- |
| H1 | 0.357  | 0.463  | 0.086  | 0.845  | 0.453  | 0.672  | 0.018  | 0.141  | 0.468  | 0.670  | 1.960  | 0.357  |
| H2 | 0.138  | 0.078  | 0.026  | 0.297  | 0.020  | 0.222  | 0.070  | 0.062  | 0.058  | 0.028  | 0.684  | 0.138  |
| H3 | 0.449  | 0.360  | 0.053  | 0.864  | 0.395  | 0.575  | 0.091  | 0.426  | 0.509  | 0.838  | 1.941  | 0.449  |
| H4 | 0.533  | 0.495  | 0.103  | 1.046  | 0.522  | 0.745  | 0.102  | 0.548  | 0.716  | 1.252  | 2.426  | 0.533  |
| H5 | 0.498  | 0.310  | 0.074  | 0.689  | 0.315  | 0.772  | 0.021  | 0.178  | 0.365  | 0.684  | 2.032  | 0.498  |
| H6 | 0.242  | 0.318  | 0.033  | 0.563  | 0.402  | 0.468  | 0.109  | 0.337  | 0.469  | 0.979  | 1.305  | 0.242  |
| H7 | 0.304  | 0.401  | 0.052  | 0.639  | 0.537  | 0.559  | 0.100  | 0.432  | 0.635  | 1.348  | 1.554  | 0.304  |
| H8 | 0.262  | 0.336  | 0.035  | 0.561  | 0.413  | 0.478  | 0.084  | 0.344  | 0.462  | 0.962  | 1.335  | 0.262  |
| H9 | 0.740  | 0.300  | 0.306  | 1.146  | 0.072  | 1.120  | 0.276  | 0.359  | 0.228  | 0.052  | 3.311  | 0.740  |
| H10 | 0.510  | 0.552  | 0.089  | 1.179  | 0.684  | 0.818  | 0.127  | 0.658  | 0.670  | 1.452  | 2.596  | 0.510  |
| H11 | 0.322  | 0.132  | 0.148  | 0.526  | 0.027  | 0.486  | 0.124  | 0.160  | 0.083  | 0.021  | 1.480  | 0.322  |
| H12 | 0.451  | 0.502  | 0.101  | 0.966  | 0.590  | 0.712  | 0.120  | 0.553  | 0.655  | 1.342  | 2.229  | 0.451  |
| H13 | 0.433  | 0.452  | 0.071  | 0.887  | 0.566  | 0.628  | 0.117  | 0.505  | 0.620  | 1.359  | 2.019  | 0.433  |
| H14 | 0.267  | 0.188  | 0.090  | 0.592  | 0.252  | 0.352  | 0.063  | 0.208  | 0.226  | 0.507  | 1.301  | 0.267  |
| H15 | 0.678  | 0.523  | 0.146  | 1.068  | 0.605  | 0.783  | 0.131  | 0.647  | 0.658  | 1.289  | 2.676  | 0.678  |
| H16 | 0.738  | 0.570  | 0.164  | 1.164  | 0.652  | 0.859  | 0.145  | 0.700  | 0.717  | 1.377  | 2.925  | 0.738  |
| H17 | 0.721  | 0.549  | 0.154  | 1.132  | 0.642  | 0.830  | 0.154  | 0.691  | 0.662  | 1.302  | 2.838  | 0.721  |
| H18 | 0.370  | 0.314  | 0.053  | 0.626  | 0.359  | 0.620  | 0.065  | 0.258  | 0.417  | 0.831  | 1.669  | 0.370  |
| Mean±sd | 0.450±0.183 | 0.384±0.147 | 0.102±0.067 | 0.833±0.268 | 0.421±0.212 | 0.652±0.210 | 0.109±0.057 | 0.409±0.205 | 0.482±0.213 | 0.909±0.491 | 2.036±0.688 | 2.714±1.229 |
| G1 | 0.425  | 0.393  | 0.059  | 0.760  | 0.095  | 0.508  | 0.000  | 0.226  | 0.350  | 0.147  | 1.751  | 1.210  |
| G2 | 0.653  | 0.114  | 0.127  | 1.400  | 0.586  | 0.272  | 0.370  | 0.240  | 0.185  | 1.867  | 2.451  | 3.362  |
| G3 | 0.395  | 0.360  | 0.044  | 0.619  | 0.078  | 0.469  | 0.000  | 0.359  | 0.322  | 0.147  | 1.527  | 1.266  |
| G4 | 0.524  | 0.395  | 0.063  | 0.932  | 0.077  | 0.603  | 0.000  | 0.039  | 0.425  | 0.165  | 2.122  | 1.101  |
| G5 | 0.783  | 0.166  | 0.190  | 2.075  | 0.788  | 0.396  | 0.559  | 0.033  | 0.238  | 2.033  | 3.445  | 3.817  |
| G6 | 0.736  | 0.128  | 0.152  | 1.668  | 0.661  | 0.347  | 0.378  | 0.046  | 0.177  | 1.690  | 2.902  | 3.079  |
| G7 | 0.798  | 0.146  | 0.222  | 1.432  | 0.884  | 0.426  | 0.426  | 0.000  | 0.217  | 2.309  | 2.878  | 3.982  |
| G8 | 0.242  | 0.047  | 0.073  | 0.466  | 0.275  | 0.143  | 0.139  | 0.143  | 0.060  | 0.679  | 0.923  | 1.344  |
| G9 | 0.613  | 0.304  | 0.024  | 0.814  | 0.323  | 0.092  | 0.029  | 0.000  | 0.807  | 1.473  | 1.543  | 2.936  |
| G10 | 0.457  | 0.516  | 0.054  | 0.620  | 0.109  | 0.646  | 0.000  | 0.301  | 0.300  | 0.101  | 1.777  | 1.327  |
| G11 | 0.440  | 0.393  | 0.059  | 0.793  | 0.094  | 0.538  | 0.000  | 0.344  | 0.330  | 0.137  | 1.829  | 1.297  |
| G12 | 0.215  | 0.242  | 0.031  | 0.379  | 0.048  | 0.282  | 0.000  | 0.246  | 0.095  | 0.030  | 0.907  | 0.662  |
| G13 | 0.501  | 0.393  | 0.063  | 0.850  | 0.083  | 0.623  | 0.000  | 0.051  | 0.418  | 0.166  | 2.037  | 1.111  |
| G14 | 0.486  | 0.420  | 0.061  | 0.711  | 0.072  | 0.645  | 0.000  | 0.016  | 0.452  | 0.144  | 1.902  | 1.104  |
| G15 | 0.381  | 0.112  | 0.054  | 0.932  | 0.549  | 0.129  | 0.176  | 0.098  | 0.140  | 1.316  | 1.496  | 2.390  |
| G16 | 0.456  | 0.454  | 0.062  | 0.766  | 0.105  | 0.588  | 0.000  | 0.062  | 0.453  | 0.191  | 1.872  | 1.266  |
| G17 | 0.546  | 0.205  | 0.076  | 1.047  | 1.373  | 0.284  | 0.237  | 0.027  | 0.106  | 1.218  | 1.952  | 3.166  |
| G18 | 0.735  | 0.148  | 0.209  | 1.365  | 0.851  | 0.404  | 0.424  | 0.120  | 0.207  | 2.143  | 2.713  | 3.894  |
| G19 | 0.383  | 0.304  | 0.045  | 0.714  | 0.075  | 0.343  | 0.000  | 0.099  | 0.294  | 0.159  | 1.485  | 0.931  |
| Mean±sd | 0.514±0.169 | 0.276±0.140 | 0.088±0.061 | 0.965±0.435 | 0.375±0.385 | 0.407±0.177 | 0.144±0.192 | 0.129±0.120 | 0.293±0.174 | 0.848±0.843 | 1.974±0.661 | 2.066±1.168 |

C2 was component 2. So did the others. T1: Total content of Caffeoylquinic acids (C2, C9, C10, C13); T1: Total content of Flavone glycosides (C6, C7, C11, C15, C16, C18);

**Supplementary Table 10. Percent Content (%) of investigated components in *C. morifolium* flower by SSDMC method**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | C2 | C6 | C9 | C10 | C11 | C13 | C18 | C7 | C15 | C16 | T1 | T2 |
| K1 | 0.371  | 0.485  | 0.082  | 0.714  | 0.635  | 0.717  | 0.079  | 0.306  | 0.132  | 0.400  | 0.371  | 0.485  |
| K2 | 0.283  | 0.360  | 0.058  | 0.531  | 0.444  | 0.516  | 0.060  | 0.228  | 0.107  | 0.332  | 0.283  | 0.360  |
| K3 | 0.166  | 0.072  | 0.024  | 0.202  | 0.016  | 0.261  | 0.036  | 0.061  | 0.058  | 0.010  | 0.166  | 0.072  |
| K4 | 0.111  | 0.187  | 0.004  | 0.126  | 0.087  | 0.103  | 0.014  | 0.010  | 0.034  | 0.043  | 0.111  | 0.187  |
| K5 | 0.350  | 0.865  | 0.006  | 0.647  | 0.727  | 1.022  | 0.012  | 0.310  | 0.317  | 0.339  | 0.350  | 0.865  |
| K6 | 0.341  | 0.474  | 0.053  | 0.523  | 0.494  | 0.677  | 0.036  | 0.265  | 0.085  | 0.199  | 0.341  | 0.474  |
| K7 | 0.406  | 0.318  | 0.053  | 0.582  | 0.163  | 0.843  | 0.104  | 0.165  | 0.046  | 0.059  | 0.406  | 0.318  |
| K8 | 0.604  | 0.548  | 0.065  | 0.538  | 0.320  | 0.604  | 0.109  | 0.061  | 0.062  | 0.092  | 0.604  | 0.548  |
| K9 | 0.158  | 0.134  | 0.013  | 0.305  | 0.151  | 0.274  | 0.022  | 0.148  | 0.094  | 0.291  | 0.158  | 0.134  |
| K10 | 0.419  | 0.523  | 0.090  | 0.757  | 0.836  | 1.054  | 0.074  | 0.316  | 0.127  | 0.457  | 0.419  | 0.523  |
| K11 | 0.241  | 0.137  | 0.050  | 0.402  | 0.051  | 0.466  | 0.142  | 0.065  | 0.139  | 0.033  | 0.241  | 0.137  |
| K12 | 0.561  | 0.700  | 0.087  | 0.701  | 0.514  | 1.032  | 0.038  | 0.182  | 0.225  | 0.367  | 0.561  | 0.700  |
| K13 | 0.378  | 0.534  | 0.024  | 0.446  | 0.576  | 0.656  | 0.020  | 0.226  | 0.163  | 0.363  | 0.378  | 0.534  |
| K14 | 0.575  | 0.582  | 0.158  | 1.094  | 0.649  | 1.336  | 0.104  | 0.652  | 0.388  | 1.094  | 0.575  | 0.582  |
| K15 | 0.292  | 0.380  | 0.068  | 0.584  | 0.482  | 0.642  | 0.058  | 0.243  | 0.112  | 0.357  | 0.292  | 0.380  |
| K16 | 0.508  | 0.518  | 0.104  | 1.054  | 0.610  | 0.961  | 0.085  | 0.450  | 0.349  | 0.972  | 0.508  | 0.518  |
| Mean±sd | 0.360±0.150 | 0.426±0.218 | 0.058±0.041 | 0.575±0.263 | 0.422±0.259 | 0.698±0.333 | 0.062±0.039 | 0.231±0.162 | 0.152±0.110 | 0.338±0.310 | 0.360±0.150 | 0.426±0.218 |

C2 was component 2. So did the others. T1: Total content of Caffeoylquinic acids (C2, C9, C10, C13); T1: Total content of Flavone glycosides (C6, C7, C11, C15, C16, C18).

**Supplementary Table 11. Content (%) of investigated components in** ***C. indicum* flower by SSDMC method**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | C2 | C6 | C9 | C10 | C13 | C18 | C7 | T1 | T2 |
| Y1 | 0.326  | 0.355  | 0.034  | 0.531  | 0.319  | 0.120  | 0.243  | 1.211  | 0.718  |
| Y2 | 0.342  | 0.149  | 0.176  | 0.508  | 0.235  | 0.631  | 0.356  | 1.260  | 1.137  |
| Y3 | 0.566  | 0.127  | 0.104  | 0.547  | 0.323  | 0.134  | 0.038  | 1.540  | 0.299  |
| Y4 | 0.384  | 0.078  | 0.060  | 0.524  | 0.282  | 0.033  | 0.032  | 1.249  | 0.144  |
| Y5 | 0.574  | 0.159  | 0.067  | 0.553  | 0.238  | 0.221  | 0.046  | 1.433  | 0.426  |
| Y6 | 0.093  | 0.012  | 0.010  | 0.177  | 0.042  | 0.344  | 0.000  | 0.321  | 0.357  |
| Y7 | 0.197  | 0.123  | 0.050  | 0.143  | 0.098  | 0.383  | 0.146  | 0.488  | 0.651  |
| Y8 | 0.066  | 0.018  | 0.003  | 0.149  | 0.031  | 1.450  | 0.000  | 0.249  | 1.468  |
| Y9 | 0.265  | 0.255  | 0.066  | 0.276  | 0.227  | 0.019  | 0.300  | 0.834  | 0.573  |
| Y10 | 0.311  | 0.307  | 0.071  | 0.321  | 0.284  | 0.024  | 0.343  | 0.988  | 0.674  |
| Y11 | 0.425  | 0.253  | 0.084  | 0.344  | 0.273  | 0.332  | 0.246  | 1.126  | 0.831  |
| Y12 | 0.119  | 0.047  | 0.034  | 0.144  | 0.052  | 0.351  | 0.050  | 0.348  | 0.448  |
| Y13 | 0.201  | 0.034  | 0.018  | 0.377  | 0.107  | 1.508  | 0.015  | 0.704  | 1.557  |
| Y14 | 0.292  | 0.112  | 0.027  | 0.136  | 0.079  | 0.287  | 0.098  | 0.533  | 0.496  |
| Y15 | 0.161  | 0.070  | 0.022  | 0.212  | 0.088  | 1.283  | 0.061  | 0.483  | 1.413  |
| Y16 | 0.186  | 0.129  | 0.030  | 0.083  | 0.118  | 0.108  | 0.058  | 0.417  | 0.295  |
| Y17 | 0.392  | 0.067  | 0.027  | 0.505  | 0.173  | 1.984  | 0.027  | 1.097  | 2.078  |
| Y18 | 0.303  | 0.151  | 0.066  | 0.263  | 0.177  | 0.153  | 0.120  | 0.810  | 0.424  |
| Y19 | 0.285  | 0.106  | 0.053  | 0.391  | 0.132  | 0.808  | 0.104  | 0.861  | 1.018  |
| Y20 | 0.091  | 0.089  | 0.007  | 0.089  | 0.058  | 0.096  | 0.046  | 0.245  | 0.231  |
| Y21 | 0.331  | 0.170  | 0.058  | 0.314  | 0.184  | 0.065  | 0.099  | 0.887  | 0.333  |
| Y22 | 0.275  | 0.053  | 0.024  | 0.308  | 0.131  | 1.310  | 0.028  | 0.738  | 1.390  |
| Y23 | 0.110  | 0.052  | 0.039  | 0.156  | 0.070  | 0.224  | 0.062  | 0.375  | 0.338  |
| Y24 | 0.396  | 0.232  | 0.020  | 0.554  | 0.215  | 1.328  | 0.136  | 1.184  | 1.696  |
| Y25 | 0.049  | 0.057  | 0.032  | 0.044  | 0.041  | 0.023  | 0.095  | 0.166  | 0.175  |
| Y26 | 0.174  | 0.022  | 0.016  | 0.223  | 0.117  | 0.750  | 0.000  | 0.530  | 0.772  |
| Y27 | 0.104  | 0.021  | 0.005  | 0.140  | 0.053  | 1.487  | 0.000  | 0.302  | 1.508  |
| Y28 | 0.079  | 0.057  | 0.030  | 0.086  | 0.073  | 0.217  | 0.084  | 0.269  | 0.358  |
| Y29 | 0.507  | 0.109  | 0.018  | 0.721  | 0.119  | 1.446  | 0.038  | 1.365  | 1.593  |
| Y30 | 0.320  | 0.266  | 0.013  | 0.309  | 0.181  | 0.527  | 0.130  | 0.824  | 0.923  |
| Y31 | 0.314  | 0.129  | 0.058  | 0.202  | 0.109  | 0.250  | 0.158  | 0.683  | 0.538  |
| Y32 | 0.536  | 0.093  | 0.030  | 1.194  | 0.156  | 1.542  | 0.014  | 1.916  | 1.650  |
| Y33 | 0.508  | 0.092  | 0.037  | 1.394  | 0.173  | 1.471  | 0.016  | 2.112  | 1.580  |
| Mean±sd | 0.281±0.153 | 0.121±0.088 | 0.042±0.034 | 0.361±0.298 | 0.150±0.086 | 0.634±0.607 | 0.097±0.099 | 0.835±0.495 | 0.851±0.555 |

C2 was component 2. So did the others. T1: Total content of Caffeoylquinic acids (C2, C9, C10, C13); T1: Total content of Flavone glycosides (C6, C7, C11, C15, C16, C18).