|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter**Supplemental Table 1**. Modified from table in Güncan and Gümüş 2017 and Wei et al., 2020 | **Description** | **Formula** | **Explanation** | **References** |
| lx | Age-specific survival rate | $$l\_{x}=\sum\_{j=1}^{k}s\_{xj} $$ | sxj gives the survivorship probability for a newborn individual to age x and stage j, k = number of stages | Chi and Liu, 1985; Chi, 1988 |
| mx | Age-specific fecundity | $$m\_{x}=\frac{\sum\_{j=1}^{k}s\_{xj}f\_{xj}}{\sum\_{j=1}^{k}s\_{xj}}$$ | fxj is the age-stage-specific fecundity. This is the number of offspring produced by an individual at age x and stage j | Chi and Liu, 1985; Chi, 1988 |
| R0 | Net reproductive rate | $$R\_{0}=\sum\_{x=0}^{\infty }l\_{x}m\_{x}$$ | The number of offspring produced per female. | Chi and Liu, 1985; Chi, 1988 |
| r | Intrinsic rate of increase | $$\sum\_{x=0}^{\infty }e^{-r(x+1)}l\_{x}m\_{x}=1$$ | Using Lotka formula to calculate a rate of increase per individual in an unlimited environment.  | Lotka, 1913; Birch, 1948; Goodman, 1982; Chi and Liu, 1985; Chi, 1988 |
| λ | Finite rate of increase | $$λ= e^{r}$$ | The number of times a population multiplies in a unit of time.  | Birch, 1948; Chi and Liu, 1985; Chi, 1988 |
| T | Mean generation time | $$T= \frac{lnR\_{0}}{r}$$ | Time required for a population to reach R0 as λ is reached.  | Chi and Liu, 1985; Chi, 1988 |
| exj | Age-stage-specific life expectancy | exj = $\sum\_{i=x}^{\infty }\sum\_{y=j}^{k}s'iy$ | Life expectancy for individual of age x and stage y. n is the number of age groups and m is the number of stages. S’ij is the probability that an individual of age x and stage y will survive to age I and stage j. Calculated assuming S’xy = 1. | Chi and Liu, 1985; Chi, 1988; Chi and Su, 2006 |
| vxj | Age-stage reproductive value | $$v\_{xj}= \frac{e^{r(x+1)}}{s\_{xj}} \sum\_{i=x}^{\infty }e^{-r(i+1)} \sum\_{y=i}^{m}s'\_{iy}f\_{iy}$$ | The contribution of individuals at age x and stage j to the future population | Fisher, 1958; Huang and Chi, 2011; Tuan et al., 2014 |

|  |  |  |
| --- | --- | --- |
| **Time (min)** | **Flow (mL/min)** | **%B** |
| 0 | 0.2 | 59 |
| 5.3 | 0.2 | 59 |
| 7.05 | 0.2 | 73 |
| 9 | 0.2 | 73 |
| 12.2 | 0.2 | 99 |
| 12.3 | 0.3 | 99 |
| 13.6 | 0.3 | 99 |
| 13.7 | 0.2 | 59 |
| 16.5 | 0.2 | 59 |

**Supplemental Table 2.** LC-gradient for cannabinoids analysis in Table 2

**Supplemental Table 2.** LC-gradient for cannabinoids in Table 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Target** | **Q1** | **Q3** | **Cone (V)** | **Collision energy (V)** | **Retention time (Min)** |
| CBDVA | 313.2 | 191.1 | 15 | 15 | 2.1 |
| CBDVA\* | 313.2 | 233.1 | 15 | 15 | 2.1 |
| CBD | 315.2 | 123 | 25 | 35 | 4.69 |
| CBD\* | 315.2 | 135.1 | 40 | 20 | 4.69 |
| CBG | 317.2 | 123 | 25 | 30 | 4.53 |
| CBG\* | 317.2 | 193.1 | 25 | 15 | 4.53 |
| CBGA\* | 343.2 | 219.1 | 15 | 15 | 4.25 |
| CBDA | 359.2 | 219.1 | 15 | 15 | 3.74 |
| CBDA\* | 359.2 | 261.1 | 15 | 15 | 3.74 |
| CBGA | 361.2 | 261.1 | 15 | 15 | 4.25 |
| THCVA\* | 313.2 | 191.1 | 45 | 25 | 5.83 |
| THCVA | 313.2 | 233.1 | 45 | 20 | 5.83 |
| delta9THC | 315.2 | 123 | 35 | 30 | 7.7 |
| delta9THC | 315.2 | 135.1 | 30 | 20 | 7.7 |
| delta9THC\* | 315.2 | 193.1 | 35 | 20 | 7.7 |
| delta9THCA\* | 341.2 | 219.1 | 45 | 25 | 8.56 |
| delta9THCA | 359.2 | 219.1 | 20 | 30 | 8.56 |
| CBCA/CBLA | 341.2 | 219.1 | 20 | 20 | 9.2 |
| CBCA/CBLA\* | 359.2 | 219.1 | 20 | 25 | 9.2 |

Mobile phases were water with 0.1% formic acid (A) and acetonitrile (B). Samples were held at 6°C in the autosampler, and the column was operated at 45°C. Injection volume =2 µL.

**Supplemental Table 3.** MRM transitions for cannabinoids in Table 2

Note: CBCA and CBLA coelute, thus the data is the sum of two compounds. \* denotes quantification transition

|  |  |  |
| --- | --- | --- |
| **Time (min)** | **Flow (mL/min)** | **%B** |
| 0 | 0.5 | 1 |
| 0.65 | 0.5 | 1 |
| 2.85 | 0.5 | 99 |
| 3.5 | 0.5 | 99 |
| 3.55 | 0.5 | 1 |
| 5 | 0.5 | 1 |

Mobile phases were water with 0.1% formic acid (A) and acetonitrile (B). Samples were held at 6°C in the autosampler, and the column was operated at 45°C. Injection volume =2 µL.

**Supplemental Table 4.** LC-gradient for phytohormone analysis in Figure 4

Supplementary Table Z MRM transitions for cannabinoids in Table 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Target** | **Q1** | **Q3** | **Cone (V)** | **Collision energy (V)** | **Retention Time (Min)** |
| salicylic acid | 137.1 | 65 | 34 | 22 | 1.94 |
| salicylic acid | 137.1 | 93 | 34 | 16 | 1.94 |
| salicylic acid-D4 | 141.1 | 97 | 30 | 15 | 1.94 |
| abscisic acid | 263.2 | 153 | 32 | 10 | 1.96 |
| abscisic acid-D6 | 269.2 | 159 | 32 | 10 | 1.96 |
| jasmonic acid | 209.2 | 59 | 10 | 10 | 2.13 |
| jasmonic acid-D5 | 214.1 | 62 | 10 | 10 | 2.13 |

**Supplemental Table 5**. MRM transitions for phytohormone analysis in Figure 4

|  |  |  |  |
| --- | --- | --- | --- |
| Primer | Sequence | Size | Reference |
| CsClathrinF | TGTCAGTTTTGTGCCACCAG | 139 bp | Mangeot-Peter et al., 2016, |
| CsClathrinR | TCCATGCGTGTTCTACCAAG |
| HEL F | CATGGCGCAGCAAATATGG | 55 bp | Balthazar et al., 2020 |
| HEL R | CCCCTAGGTCCGGATGGT |
| PR1 F | GCGTAACTCGGTTCGTTTGG | 71 bp | Balthazar et al., 2020 |
| PR1 R | TGCAAGTGATGAAGGTACCCTTATT |
| CBDASqPCR\_F | GCAATACACACTTACTTCTCTTCAGTTTTC | 241 bp | Fulvio et al., 2021 |
| CBDASqPCR\_R | ACGTAGTCTAACTTATCTTGAAAGCAC |
| PP2C-6F | GACGACGACTGTCTGATTT | 134 bp | Gao et al., 2018 |
| PP2C-6R | GGTGATACCGAAGACGAG |

**Supplemental Table 6**. RT-qPCR primers used in this study

**References**

Supplementary Table 1 Modified from table in (Güncan and Gümüş 2017, Wei et al. 2020)

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