**Supplementary materials**

**Table S1.** Analysis of variance of the quadratic models for CBD and Δ9-THC contents in the Hang Kra Rog Phu Phan cultivar and the Δ9-THC content in the Charlotte’s Angel cultivar and of the special quartic model for CBD content in the Charlotte’s Angel cultivar.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Source** | **Sum of Squares** | **df** | **Mean Square** | ***F*-value** | ***p*-value** |
| **Hang Kra Rog Phu Phan** | ***CBD*** | | | | | |
| Model | 0.0005 | 5 | 0.0001 | 6.1900 | 0.0072\* |
| Linear mixture | 0.0004 | 2 | 0.0002 | 10.9800 | 0.0030\* |
| AB | 0.0001 | 1 | 0.0001 | 5.2200 | 0.0454\* |
| AC | 0.0000 | 1 | 0.0000 | 0.8778 | 0.3709 |
| BC | 0.0000 | 1 | 0.0000 | 0.6155 | 0.4509 |
| Lack of fit | 0.0001 | 5 | 0.0000 | 0.8614 | 0.5630 |
| ***Δ9-THC*** | | | | | |
| Model | 0.1297 | 5 | 0.0259 | 4.6500 | 0.0187\* |
| Linear mixture | 0.0701 | 2 | 0.0350 | 6.2900 | 0.0171\* |
| AB | 0.0378 | 1 | 0.0378 | 6.7800 | 0.0263\* |
| AC | 0.0053 | 1 | 0.0053 | 0.9516 | 0.3523 |
| BC | 0.0040 | 1 | 0.0040 | 0.7150 | 0.4176 |
| Lack of fit | 0.0224 | 5 | 0.0045 | 0.6702 | 0.6644 |
| **Charlotte’s Angel** | ***CBD*** | | | | | |
| Model | 0.0798 | 8 | 0.0100 | 1.2300 | 0.3980 |
| Linear mixture | 0.0067 | 2 | 0.0033 | 0.4126 | 0.6770 |
| AB | 0.0127 | 1 | 0.0127 | 1.5600 | 0.2514 |
| AC | 0.0147 | 1 | 0.0147 | 1.8100 | 0.2200 |
| BC | 0.0145 | 1 | 0.0145 | 1.7900 | 0.2222 |
| A²BC | 0.0016 | 1 | 0.0016 | 0.1999 | 0.6683 |
| AB²C | 0.0197 | 1 | 0.0197 | 2.4300 | 0.1631 |
| ABC² | 0.0300 | 1 | 0.0300 | 3.7000 | 0.0957 |
| Lack of fit | 0.0142 | 2 | 0.0071 | 0.8380 | 0.4854 |
| ***Δ9-THC*** | | | | | |
| Model | 0.4123 | 5 | 0.0825 | 5.0900 | 0.0141\* |
| Linear mixture | 0.1612 | 2 | 0.0806 | 4.9700 | 0.0317\* |
| AB | 0.0496 | 1 | 0.0496 | 3.0600 | 0.1108 |
| AC | 0.0157 | 1 | 0.0157 | 0.9710 | 0.3477 |
| BC | 0.0050 | 1 | 0.0050 | 0.3104 | 0.5897 |
| Lack of fit | 0.0318 | 5 | 0.0064 | 0.2441 | 0.9261 |

\* Significant (*p*-value < 0.05)

A, B, and C represent the acetonitrile, methanol, and water ratios, respectively.



**Fig. S1.** HPLC chromatograms for (a) 50 µg/mL CBD and Δ9-THC standards, as well as cannabis inflorescence samples from the Hang Kra Rog Phu Phan (left) and Charlotte’s Angel (right) cultivars prepared using (b) the optimal solvent system (acetonitrile, methanol, and water at a volume ratio of 0.511:0.289:0.200), (c) acetonitrile (recommended in the THP), and (d) the methanol:chloroform mixture (9:1; recommended by the UNODC).