**Fig. S1** Chromatograms of CM. raw products (S), honey-processed products (M), and stir-fried products (C)

Fig1

**Fig. S2.** Morphologic photos of CM. (A) Raw CM;(B) Stir-fried CM;(C) Honey-processed CM

Fig.1

**Tab. S1**. Results of dynamic parameters of ZH andYH.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Honey type | Order of reaction | Zero order kinetic equation | | First-order kinetic equation | | Second-order kinetic equation | |
| Indexes | | K | R2 | K | R2 | K | R2 |
| ZH | T | 1.087 | 0.6803 | 0.0202 | 0.8536 | 0.0007 | 0.3451 |
| MC | -0.0418 | 0.9496 | -0.0027 | 0.9427 | 0.0002 | 0.9205 |
| pH | -0.0011 | 0.5839 | -0.0002 | 0.5557 | 5.00E-05 | 0.5851 |
| Color | 0.0032 | 0.7629 | 0.0002 | 0.9171 | -0.0522 | 0.8725 |
| Viscosity | 397.74 | 0.8448 | 0.0202 | 0.9729 | 2.00E-06 | 0.9473 |
| 5-HMF | 0.161 | 0.7878 | 0.0182 | 0.9685 | -0.0031 | 0.9673 |
| TPC | 1.1763 | 0.9302 | 0.011 | 0.9756 | -1E-05 | 0.9645 |
| FRAR | 3.3396 | 0.9077 | 0.0154 | 0.9696 | -1E-04 | 0.9296 |
| YH | T | 1.1676 | 0.7331 | 0.0185 | 0.8656 | -0.0004 | 0.4068 |
| MC | -0.0276 | 0.9106 | -0.0017 | 0.9073 | 0.0001 | 0.8716 |
| pH | -0.002 | 0.5657 | 0.0004 | 0.5663 | 0.0007 | 0.5667 |
| Color | 0.0028 | 0.931 | 0.0124 | 0.9587 | -0.0598 | 0.931 |
| Viscosity | 223.63 | 0.6395 | 0.0177 | 0.9549 | -1.0E-06 | 0.9872 |
| 5-HMF | 0.3141 | 0.8489 | 0.0175 | 0.9104 | -0.0016 | 0.8924 |
| TPC | 1.0048 | 0.8442 | 0.0094 | 0.9366 | -0.0002 | 0.9296 |
| FRAR | 0.4422 | 0.8442 | 0.0119 | 0.9271 | -0.0002 | 0.9147 |

**Tab. S2.** MC, TPC and 5-HMF of ZH measured at different temperature and time points (n=3)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| T (℃) | Time (min) | MC (%) | TPC(mg GAE/100 g) | 5-HMF(mg/100 g) |
| 125 ℃ | 0 | 17.65 | 56.61 | 2.67 |
| 20 | 17.59 | 64.92 | 2.91 |
| 40 | 17.25 | 72.22 | 3.87 |
| 60 | 16.75 | 102.57 | 6.17 |
| 80 | 15.55 | 148.70 | 10.66 |
| 80 ℃ | 100 | 14.64 | 180.22 | 18.58 |
| 0 | 17.65 | 56.61 | 2.67 |
| 20 | 17.12 | 72.10 | 3.26 |
| 40 | 16.86 | 71.86 | 3.24 |
| 60 | 16.57 | 71.80 | 3.37 |
| 80 | 16.47 | 69.21 | 3.46 |
| 100 | 16.11 | 70.92 | 3.54 |

**Tab. S3.** Kinetic reaction equations and related parameters of MC, TPC and 5-HMF in ZH at different temperatures

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| T(℃) | Indexes | Kinetic equation | R2 | Order of reaction | K |
| 125 ℃ | MC | y = -0.0015x | 0.9100 | First-order | 0.0015 |
| TPC | y = 0.011x | 0.9776 | First-order | 0.0110 |
| 5-HMF | y = 0.0169x | 0.9617 | First-order | 0.0169 |
| 80 ℃ | MC | y = -0.001x | 0.9852 | First-order | 0.0010 |
| TPC | y = 0.0029x | 0.8817 | First-order | 0.0029 |
| 5-HMF | y = 0.0034x | 0.9110 | First-order | 0.0034 |

**Tab. S4**. Compounds identified of chemical markers of CM.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No.** | **T/min** | **[M + H]-(*m*/*z*)** | **Formula** | **Error (ppm)** | **Identification** | **Proposed Structure** |
| **2** | 4.12 | - | C6H6O3 | - | 5-Hydroxymethylfurfural |  |
| **3** | 6.09 | 567.17 | C26H32O14 | 2.27 | Mulberroside A |  |
| **4** | 6.84 | 353.09 | C16H18O9 | 3.87 | Chlorogenic acid |  |
| **7** | 11.95 | 243.07 | C14H12O4 | 4.58 | Oxyresveratrol |  |
| **10** | 22.08 | 591.13 | C34H24O10 | 3.76 | Mulberrofuran Q |  |
| **12** | 22.77 | 579.17 | C34H28O9 | 3.62 | Mulberrofuran C |  |
| **17** | 27.40 | 691.22 | C40H36O11 | 2.94 | Kuwanon G |  |
| **21** | 30.96 | 693.24 | C40H38O11 | 3.78 | Kuwanon O |  |
| **24** | 32.96 | 759.29 | C45H44O11 | 3.35 | Sanggenon C |  |
| **25** | 35.44 | 421.17 | C25H26O6 | 4.03 | Cudraflavanone A |  |
| **27** | 37.33 | 419.15 | C25H24O6 | 3.96 | Cyclomulberrin |  |
| **29** | 39.59 | 419.15 | C25H24O6 | 4.03 | Morusin |  |
| **32** | 42.85 | 391.19 | C25H28O4 | 4.09 | Mulberrofuran B |  |

**Tab. S5.** Active ingredient gene targets of CM

|  |  |
| --- | --- |
| **Active ingredients** | **Targets** |
| Oxyresveratrol | HCK、BACE1、ALB、MAPK14、ESR1、PTGS1、PTGS2、APP、CYP1A2、CYP2C9、CYP3A4、CYP2C19、PIK3CA、LCK、SYK、RELA、MAPT、ALOX5、TTR、AHR、CYP1A1、CYP19A1、EGFR、ABCB1、PTK2B、HMGCR |
| kuwanon G | MAPK10、MMP13、MAPK8、TTR、MAPK14、MMP3、BMP2、GSTP1、ESR1、BACE1、ALB、HCK、MAPK1、NQO1、KDR、HSP90AA1、SHBG、RELA |
| Morusin | ABCG2、PTGS2、BACE1、ADORA3、NFKB1、RELA、CYP1A1、CYP1A2、ALB、TTR、BMP2、KDR、MAPK10、GSTP1、CASP3、MAPK1、MAPK14、AR、F2、ESR1、MMP13、RORA |