**Supplementary Materials**

Table S1. The phylogenetic identification of different *A. cinnamomea* (AC) phenotypes collected from the wild.

| Sample | Location | ITS length (bps) | Similarity (%) | Accession number* |
|---|---|---|---|---|
| RACC | Chiayi | 656 | 99.22 | MN947413 |
| RACN | Hualien | 657 | 99.38 | MN947414 |
| RACF | Taitung | 657 | 99.39 | MK764936 |
| RACTE | Chiayi | 592 | 99.49 | MN947415 |
| WACF | Taitung | 656 | 99.53 | MK764938 |
| WACD | Dongshi | 658 | 99.08 | MN947417 |
| WACN | Hualien | 657 | 99.38 | MN947418 |
| WACZ | Miaoli | 654 | 99.69 | MN947419 |
| YACF | Tainan | 656 | 99.23 | MK764937 |
| YACZ | Dongshi | 657 | 99.38 | MN947416 |

*Registered in the NCBI Genbank

RACC, RACN, RACF, and RACTE represent red AC (RAC) phenotypes

WACF, WACD, WACN, and WACZ represent white AC (WAC) phenotypes

YACF and YACZ represent yellow AC (YAC) phenotypes

Table S2. Compounds having significant contributions to each principal component [greater than 0.2; include principal component 1 (PC1) and principal component 2 (PC2)] in principal component analysis using the scaled relative peak areas (%) as independent variables.

| Compound ID | HRMS (*m/z*) | $t_R$ (min) | Identity | Loading | |
|---|---|---|---|---|---|
| | | | | PC1 | PC2 |
| 39 | 469.2956 | 6.25 | 25*R*-antcin C | 0.47 | 0.26 |
| 38 | 469.2957 | 6.04 | 25*S*-antcin C | 0.41 | 0.23 |
| 50 | 487.3061 | 4.00 | 25*S*-antcin K | 0.31 | 0.07 |
| 18 | 425.3059 | 6.25 | Unknown | 0.26 | 0.14 |
| 17 | 425.3060 | 6.03 | Unknown | 0.24 | 0.12 |
| 87 | 409.3110 | 10.02 | Unknown | 0.21 | 0.13 |
| 101 | 935.5669 | 8.41 | Unknown | -0.12 | 0.27 |
| 37 | 467.2800 | 8 41 | 25*S*-antcin B | -0.15 | 0.38 |
| 16 | 423.2902 | 8 41 | Unknown | -0.35 | 0.68 |

Note: HRMS: the mass-to-charge ratio of $[M–H]^-$ measured by high-resolution mass spectrometry.

Table S3. Significantly different compounds of unidentified structure.

| Compound ID | $t_R$ (min) | HRMS (*m/z*) | Formula | Peak area (10000 units) | | |
|---|---|---|---|---|---|---|
| | | | | RAC | YAC | WAC |
| 84 | 8.41 | 285.1495 | $C_{18}H_{22}O_3$ | 168[a] | 103.4[b] | 53.7[c] |
| 3 | 8.41 | 407.2591 | $C_{27}H_{36}O_3$ | 2098[a] | 991.4[b] | 822.2[b] |
| 4 | 4.00 | 407.2953 | $C_{28}H_{40}O_2$ | 224[b] | 364[a] | 230.5[b] |
| 72 | 3.99 | 407.2953 | $C_{28}H_{40}O_2$ | 220[b] | 402[a] | 249.3[b] |
| 73 | 7.12 | 409.2745 | $C_{27}H_{38}O_3$ | 98[a] | 33[c] | 52.3[b] |
| 12 | 5.24 | 411.2903 | $C_{27}H_{40}O_3$ | 127[b] | 164.5[a] | 95.5[c] |
| 119 | 4.87 | 413.3061 | $C_{27}H_{42}O_3$ | 9[b] | 319.5[a] | 34.67[b] |
| 90 | 8.16 | 421.2746 | $C_{28}H_{38}O_3$ | 544[a] | 160[b] | 114[b] |
| 16 | 8.41 | 423.2902 | $C_{28}H_{40}O_3$ | 9678[a] | 4960[b] | 2798[c] |
| 113 | 6.59 | 423.2903 | $C_{28}H_{40}O_3$ | 657[a] | 448[b] | 320[b] |
| 121 | 8.71 | 427.3217 | $C_{28}H_{44}O_3$ | 12[b] | 297[a] | 7[b] |
| 120 | 8.69 | 427.3217 | $C_{28}H_{44}O_3$ | 12[b] | 162[a] | 7[b] |
| 29 | 6.19 | 439.2851 | $C_{28}H_{40}O_4$ | 443[a] | 191[b] | 148[b] |
| 122 | 8.74 | 439.2851 | $C_{28}H_{40}O_4$ | 21[b] | 110[a] | 18[b] |
| 123 | 5.17 | 441.3007 | $C_{28}H_{42}O_4$ | 611[a] | 322[b] | 281[b] |
| 30 | 5.23 | 441.3007 | $C_{28}H_{42}O_4$ | 504[a] | 350[b] | 241[c] |
| 78 | 6.83 | 455.2800 | $C_{28}H_{40}O_5$ | 462[a] | 172[b] | 159[b] |
| 95 | 4.22 | 455.2800 | $C_{28}H_{40}O_5$ | 69[a] | 41[b] | 22[c] |
| 35 | 4.70 | 457.2956 | $C_{28}H_{42}O_5$ | 416[b] | 727[a] | 321[b] |
| 124 | 4.89 | 457.2958 | $C_{28}H_{42}O_5$ | 84[b] | 488[a] | 79[b] |
| 105 | 8.17 | 465.2645 | $C_{29}H_{38}O_5$ | 233[a] | 82[b] | 62[b] |
| 104 | 8.17 | 465.2646 | $C_{29}H_{38}O_5$ | 221[a] | 82[b] | 63[b] |
| 107 | 6.96 | 469.2959 | $C_{29}H_{38}O_5$ | 444[a] | 282[b] | 150[c] |
| 106 | 6.93 | 469.2959 | $C_{29}H_{38}O_5$ | 432[a] | 316[b] | 155[c] |
| 126 | 8.71 | 471.3116 | $C_{29}H_{44}O_5$ | 21[b] | 462[a] | 11[b] |
| 125 | 8.69 | 471.3116 | $C_{29}H_{44}O_5$ | 21[b] | 249[a] | 12[b] |
| 45 | 6.18 | 483.2747 | $C_{29}H_{40}O_6$ | 1176[a] | 474[b] | 332[b] |
| 140 | 4.14 | 499.2696 | $C_{29}H_{40}O_7$ | 514[a] | 119[b] | 99[b] |
| 63 | 6.82 | 501.2853 | $C_{29}H_{42}O_7$ | 86[a] | 48[b] | 32[b] |
| 82 | 8.42 | 513.2855 | $C_{30}H_{42}O_7$ | 476[a] | 376[b] | 214[c] |
| 99 | 5.24 | 517.3166 | $C_{30}H_{46}O_7$ | 244[a] | 264[a] | 140[b] |

Note: RAC (red), YAC (yellow), and WAC (white) represent the color appearance of fruiting bodies of different *A. cinnamomea* phenotypes. Values are the average of four analyses (n = 4); different letters in the same column indicate significant differences between different AC phenotypes ($P < 0.05$; LSD test), and the difference in peak areas is represented by the depth of the gray-color shading. HRMS: the mass-to-charge ratio of $[M–H]^-$ measured by high-resolution mass spectrometry.