**Supplementary Material**

**Genetic diversity and SSR development of ancient *Camellia sinensis* in Sandu County of Guizhou Province**

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**Table S1** List of various populations of ancient tea germplasm used for diversity analysis and their geographical information

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sampling position | Tree form | longitude | latitude | Average altitude | Sampling number |
| Guqi Village | Bush | 107°59′34″E | 25°44′34″N | 689.09 m | 22 |
| Landong Village | Bush | 108°0′20″E | 25°42′40″N | 988.67 m | 15 |
| Yangmeng Village | Arbor/Bush | 107°50′11″E | 25°45′8″N | 884.00m | 10 |
| Landong Village | Arbor | 108°0′30″E | 25°42′30″N | 905.23 m | 44 |
| Zenza Village | Arbor | 108°9′37″E | 25°59′36″N | 1299.56m | 54 |

**Table S2** Standardized treatment and assignment of phenotypic characters of the tea leaves used for diversity analysis

|  |  |  |
| --- | --- | --- |
| Number | Phenotypic character | Data assignment |
| 1 | Tree form | Arbor（1）；Semiarbors（2）；Bush（3） |
| 2 | Leaf shape | Suborbicular（1）；Oval（2）；Long oval（3）；lanceolate（4） |
| 3 | Leaf size | lobules（1）；middle leaves（2）；large leaves（3）；oversized leaves（4） |
| 4 | Leaf texture | Soft（1）；Hard（2） |
| 5 | Leaf opex | Acute（1）；Taper（2）；Obtuse（3） |
| 6 | Leaf dent depth | Shallow（1）；Medium（2）；Deep（3） |
| 7 | Leaf colour | Bottle green（1）；Green（2）；Yellow green（3） |

Leaf area = leaf length \* leaf width \*0.7.Leaf area greater than 60 cm2 is very large, leaf area between 40 and 60 cm2 is large, leaf area between 20 and 40 cm2 is middle, and leaf area less than 20 cm2 is lobular. Leaf shape index = leaf length/leaf width. If the leaf shape index is less than 2.0, it is subcircular; if the leaf shape index is 2.0~2.5, it is elliptic; if the leaf shape index is 2.5~3.0, it is long elliptic; if the leaf shape index is greater than 3.0, it is lanceolate.

**Table S3** Statistical analysis of the seven qualitative characters of 145 ancient tea germplasm used for diversity analysis of phenotypic characters

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Items | Tree form | Leaf texture | Leaf  opex | Leaf  shape | Leaf  size | Leaf tooth depth | Leaf  colour |
| Maximum | 3 | 2 | 3 | 4 | 4 | 3 | 3 |
| Minimum | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mean | 2.37 | 1.86 | 1.57 | 2.63 | 1.88 | 1.51 | 1.72 |
| SD | 0.87 | 0.35 | 0.69 | 0.67 | 0.58 | 0.76 | 0.70 |
| CV（%） | 36.82 | 18.58 | 44.18 | 25.35 | 30.70 | 50.64 | 40.01 |
| H | 0.77 | 0.55 | 0.81 | 0.83 | 0.76 | 0.78 | 0.84 |

SD-Standard deviation; CV- the variation coefficients; H- diversity indices

**Table S4** Statistical analysis of the six quantitative characters of 145 ancient tea germplasm used for diversity analysis of phenotypic characters

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Items | veins logarithmic | Leaves teeth logarithmic | Height of tree | Leaf area | Length of tree | Leaf width |
| Maximum | 13.67 | 41.67 | 12 | 70.72 | 16.53 | 6.10 |
| Minimum | 4.33 | 6.33 | 0.70 | 8.58 | 5.03 | 2.43 |
| Mean | 8.70 | 24.91 | 4.45 | 27.9 | 9.89 | 3.90 |
| SD | 1.55 | 7.23 | 2.69 | 9.87 | 1.93 | 0.7 |
| CV（%） | 17.76 | 29.02 | 60.37 | 35.37 | 19.53 | 17.91 |
| H | 1.72 | 2.66 | 2.17 | 2.74 | 2.50 | 2.26 |

SD-Standard deviation; CV- the variation coefficients; H- diversity indices

**Table S5** Variation coefficients of the phenotypic characters of five populations of ancient tea germplasm used for diversity analysis

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sites | Zenya village  (arbor)(%) | Yangmeng village  (arbor)(%) | Landong village  (arbor)(%) | Landong  Village  (bush)(%) | Guqi village  (bush)(%) |
| Characters |
| Tree shape | 6.43 | 22.59 | 17.06 | - | - |
| Leaf texture | 24.53 | - | 7.62 | - | 26.39 |
| Leap opex | 30.84 | 41.70 | 39.06 | 50.67 | 55.36 |
| Leap shape | 25.66 | 19.57 | 24.51 | 25.26 | 24.27 |
| Leap size | 27.05 | 23.57 | 23.94 | 31.05 | 19.19 |
| Leaf tooth depth | 57.77 | 48.43 | 34.54 | 45.71 | 40.18 |
| Leaf colour | 39.71 | 55.80 | 34.81 | 36.14 | 40.96 |
| Veins logarithmic | 18.98 | 20.77 | 11.38 | 24.68 | 13.26 |
| Leaves teeth logarithmic | 26.61 | 22.68 | 23.46 | 20.20 | 18.07 |
| Height of tree（m） | 41.27 | 29.81 | 38.32 | 43.30 | 42.37 |
| Length of leaf（cm） | 15.87 | 11.56 | 14.17 | 18.68 | 15.60 |
| Leaf width（cm） | 13.81 | 12.19 | 15.42 | 14.63 | 13.05 |
| Leaf area（cm2） | 27.58 | 28.37 | 26.63 | 33.34 | 23.76 |
| Mean | 27.39 | 25.93 | 23.92 | 26.44 | 25.57 |

**Table S6** Diversity index(H) of phenotypic characters of five populations of ancient tea germplasm used for diversity analysis

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sites | Zenya village  (arbor) | Yangmeng village  (arbor) | Landong village  (arbor) | Landong village  (bush) | Guqi  village  (bush) |
| Characters |
| Tree shape | 0.1584 | 0.3251 | 0.6070 | - | - |
| Leaf texture | 0.5519 | - | 0.1085 | - | 0.5860 |
| Leap opex | 0.7327 | 1.0889 | 0.6098 | 0.8609 | 0.6765 |
| Leap shape | 0.9356 | 0.8018 | 1.0209 | 0.8823 | 0.8455 |
| Leap size | 0.6077 | 0.6390 | 0.7653 | 0.3927 | 0.4851 |
| Leaf tooth depth | 0.5055 | 1.0297 | 0.5360 | 1.0852 | 1.0844 |
| Leaf colour | 1.0067 | 0.8979 | 1.0018 | 0.5799 | 0.8192 |
| Veins logarithmic | 2.6921 | 1.8867 | 2.2472 | 2.4308 | 2.2212 |
| Leaf teeth logarithmic | 3.3328 | 2.1640 | 3.3942 | 2.4883 | 2.9020 |
| Height of tree（m） | 2.8702 | 2.1640 | 3.3431 | 1.8763 | 2.2842 |
| Length of leaf（cm） | 3.7226 | 2.3026 | 3.5518 | 2.6156 | 2.9650 |
| Leaf width（cm） | 3.2668 | 2.1640 | 3.3193 | 2.5232 | 2.9020 |
| Leaf area（cm2） | 3.9890 | 2.3026 | 3.7842 | 2.7081 | 3.0280 |
| Mean | 1.8700 | 1.3700 | 1.8700 | 1.4200 | 1.6000 |

**Table S7** Eigenvectors and contribution rates of the principal components of 13 phenotypic characters

|  |  |  |  |
| --- | --- | --- | --- |
| Principal components | Eigenvalue | Contribution（%） | Cumulative（%） |
| PC1 | 4.226 | 32.505 | 32.505 |
| PC2 | 2.066 | 15.891 | 48.396 |
| PC3 | 1.768 | 13.598 | 61.994 |
| PC4 | 1.222 | 9.401 | 71.395 |
| PC5 | 0.988 | 7.596 | 78.991 |
| PC6 | 0.844 | 6.491 | 85.482 |

**Table S8** Principal component analysis of the 145 ancient tea germplasm

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Germplasm | Factor value | | | | | |
| PC1  (Leaf size) | PC2  (Leaf shape) | PC3  (Leaf teeth) | PC4  (Leaf shape) | PC5  (Leaf texture) | PC6  (Veins logarithmic) |
| LDT1 | 0.16278 | 1.04023 | -0.12559 | 1.52578 | -0.13394 | -0.20235 |
| LDT2 | 0.71795 | -0.00594 | 0.42038 | 1.63741 | -0.24923 | 1.16278 |
| LDT3 | 0.81955 | -0.47761 | 0.98032 | 1.93221 | -0.00673 | 0.62126 |
| LDT4 | -0.00877 | 0.38653 | -0.63814 | 1.60459 | 0.04021 | -0.13315 |
| LDT5 | 0.65769 | 0.06935 | -0.54498 | 0.74567 | -2.67014 | 1.21158 |
| LDT6 | -0.03003 | 1.04298 | -1.23465 | 0.17352 | 0.60886 | -0.78415 |
| LDT7 | -0.27472 | -1.59603 | 0.15006 | 1.50598 | 0.74128 | 1.37354 |
| LDT8 | 1.19074 | 0.49117 | -0.98778 | -0.43217 | -2.51612 | -0.08071 |
| LDT9 | 0.32161 | -0.30933 | -1.17031 | -0.79822 | -2.02988 | 1.16091 |
| LDT10 | -0.20979 | -0.59567 | -1.11619 | -0.03272 | 0.86631 | 0.84382 |
| LDT11 | 0.22008 | -0.57482 | -1.50233 | 0.00273 | -2.21151 | 0.67175 |
| LDT12 | 0.49734 | 0.81540 | -0.55358 | 0.53631 | -1.88025 | 3.06604 |
| LDT13 | 0.03159 | 0.00266 | -0.99284 | 0.43010 | 0.34888 | -0.64446 |
| LDT14 | 0.06276 | 1.37737 | -0.99951 | 1.78127 | 0.14649 | -0.72314 |
| LDT15 | 0.06743 | -0.33783 | -0.79187 | -0.78368 | 0.54686 | -0.69699 |
| LDT16 | -0.09927 | 0.44825 | -0.01433 | 0.71176 | 0.88946 | -0.00246 |
| LDT17 | 0.11629 | 0.65312 | 0.18029 | 1.04836 | 0.55620 | -0.36489 |
| LDT18 | -0.07541 | -0.91742 | -0.92233 | 0.51872 | 0.36731 | 0.15388 |
| LDT19 | 0.34004 | 0.40900 | 0.10230 | 0.12111 | 0.19433 | 0.50129 |
| LDT20 | 0.06508 | 1.22571 | -0.19783 | 0.09601 | -2.31468 | 1.61209 |
| LDT21 | -1.45967 | -1.53281 | -2.02354 | 1.13088 | 0.38374 | -1.01555 |
| LDT22 | -0.32502 | -1.05856 | 0.01163 | 1.29812 | 0.40204 | -0.27358 |
| LDT23 | -0.32247 | 0.51919 | -0.55819 | 0.87068 | -0.06773 | -1.16274 |
| LDT24 | -0.28917 | -0.42981 | -0.69493 | 0.26652 | 0.77566 | 1.37747 |
| LDT25 | -0.98641 | 0.33112 | -0.85890 | 0.82673 | 0.45533 | -0.06735 |
| LDT26 | 0.39050 | -0.60564 | -0.72727 | 1.33233 | 0.14391 | 0.56462 |
| LDT27 | -0.16772 | -1.54281 | -0.11461 | 0.98133 | 0.35853 | -0.55541 |
| LDT28 | -0.91641 | -0.17567 | -0.93338 | 1.37273 | 0.53601 | 0.94479 |
| LDT29 | -1.25285 | -0.33504 | -1.49521 | 0.43486 | -2.02927 | 1.17974 |
| LDT30 | -0.60306 | -0.8974 | -0.06042 | 1.40621 | 0.48682 | -0.23688 |
| LDT31 | -0.10878 | 0.64930 | -0.25467 | 1.37689 | -0.02296 | -0.11426 |
| LDT32 | -1.03810 | -0.55021 | -1.61463 | 0.86386 | 0.63804 | -0.10091 |
| LDT33 | -0.49827 | 1.94124 | -0.26428 | 0.63174 | 0.79141 | 1.21949 |
| LDT34 | 0.26647 | 0.58489 | -0.88380 | 0.76502 | 0.01149 | -1.34230 |
| LDT35 | 0.24503 | 1.79735 | 0.49669 | 1.83429 | -0.21245 | 0.30890 |
| LDT36 | -0.22643 | 1.42178 | -0.36557 | 0.28375 | 0.38280 | -0.28260 |
| LDT37 | -1.14371 | 0.69482 | -0.02904 | 2.15192 | 0.74152 | 0.30573 |
| Continued Table S8 | | | | | | |
| Germplasm | Factor value | | | | | |
| PC1  (Leaf size) | PC2  (Leaf shape) | PC3  (Leaf teeth) | PC4  (Leaf shape) | PC5  (Leaf texture) | PC6  (Veins logarithmic) |
| LDT38 | -1.41914 | 0.51797 | -1.50016 | -0.69801 | -1.62179 | 1.07902 |
| LDT39 | -1.44154 | 0.01678 | -0.05894 | 1.50433 | 0.70093 | -0.18459 |
| LDT40 | -0.08246 | -0.10526 | 0.38830 | 3.06656 | 0.61741 | 1.95975 |
| LDT41 | -0.22601 | -0.73493 | -1.25866 | 0.42471 | 0.62614 | 0.13226 |
| LDT42 | 0.09724 | 0.55250 | -0.80550 | 0.31044 | 0.18452 | -1.19671 |
| LDT43 | -1.03179 | -0.37499 | -0.43426 | 0.95949 | -1.64035 | 1.82411 |
| LDT44 | -1.64823 | 0.19063 | -1.69309 | -0.14891 | -1.99077 | 0.03508 |
| LDT45 | -1.49805 | -0.15220 | -1.63778 | -0.22550 | -2.08102 | 0.03701 |
| LDT46 | -0.96766 | 0.52509 | -1.62513 | -0.24045 | 0.97782 | -0.40278 |
| LDT47 | -1.38459 | 0.28576 | -1.37306 | 0.30477 | 0.93886 | 0.33128 |
| LDT48 | 0.50594 | 0.82705 | -0.83081 | -1.30071 | -2.03886 | 0.54863 |
| LDT49 | 0.57909 | 0.30808 | -0.19197 | 0.22137 | -0.09681 | -0.82792 |
| LDT50 | 0.09522 | 0.60696 | -0.67215 | 0.74113 | -0.02532 | -1.22330 |
| LDT51 | 0.72393 | -0.77034 | -1.08679 | -1.01773 | 0.72557 | 0.04702 |
| LDT52 | -0.48950 | -0.37014 | -1.75339 | -0.84673 | 0.38704 | -3.14534 |
| LDT53 | -1.10517 | 0.71554 | -1.12897 | -1.21301 | -1.38350 | 1.74100 |
| LDT54 | -0.33784 | 2.52000 | -0.78425 | 0.05504 | 0.63799 | -1.17791 |
| ZYT55 | 0.12696 | 2.11624 | 0.39467 | -0.64208 | 0.34090 | -0.86440 |
| ZYT56 | 0.82219 | 1.17413 | 1.06110 | 0.49860 | -0.08457 | -0.87243 |
| ZYT57 | -0.09951 | 1.27972 | 0.28101 | -0.24756 | 0.26010 | -0.43317 |
| ZYT58 | 0.42790 | -0.25402 | -1.23814 | -0.60583 | 0.90776 | 0.31563 |
| ZYT59 | 1.20022 | 1.61763 | 0.60116 | -1.08540 | 0.22195 | -0.61642 |
| ZYT60 | 0.75148 | 0.78104 | 0.30168 | -0.30248 | 0.23883 | 0.07355 |
| ZYT61 | 0.45660 | 2.17137 | 0.29797 | -0.44142 | 0.22696 | -1.05267 |
| ZYT62 | 1.02664 | 0.55345 | -0.52671 | -1.01581 | -1.99552 | 1.72396 |
| ZYT63 | -0.35979 | 2.24838 | -0.03658 | -0.59245 | 0.15616 | -2.23779 |
| ZYT64 | -0.05425 | -0.54561 | -0.48956 | -1.66363 | 0.90611 | 0.03482 |
| ZYT65 | 0.28161 | 1.11283 | -0.50640 | 0.79721 | 0.34581 | -1.39477 |
| ZYT66 | -0.08833 | 0.57141 | 0.12962 | -0.61903 | 1.03107 | 0.65758 |
| ZYT67 | 1.91156 | -1.19521 | -0.35738 | -1.12499 | 0.48865 | 0.77946 |
| ZYT68 | -0.77284 | 0.98805 | -1.22696 | -0.17393 | 1.18911 | 0.65881 |
| ZYT69 | 1.85597 | 0.67920 | 1.65032 | 0.82801 | -0.57732 | -0.68994 |
| ZYT70 | 3.41001 | -0.88433 | 0.27410 | 0.16895 | -0.96519 | -1.46616 |
| ZYT71 | 1.65060 | -1.87734 | -0.65704 | -0.98636 | 0.27012 | 0.10283 |
| ZYT72 | 0.60893 | -1.25493 | -0.5663 | -0.80139 | 0.77553 | 0.07168 |
| ZYT73 | 1.34324 | -1.40792 | -0.21741 | -0.27635 | 0.43694 | 0.20361 |
| ZYT74 | 1.43181 | -0.34132 | 0.41823 | -0.03951 | 0.22622 | 0.14345 |
| ZYT75 | 0.37435 | -1.07381 | -1.05034 | -0.19357 | 0.24415 | -1.07970 |
| Continued Table S8 | | | | | | |
| Germplasm | Factor value | | | | | |
| PC1  (Leaf size) | PC2  (Leaf shape) | PC3  (Leaf teeth) | PC4  (Leaf shape) | PC5  (Leaf texture) | PC6  (Veins logarithmic) |
| ZYT76 | 1.94587 | -0.45065 | 0.37307 | -0.31711 | 0.28210 | 0.22975 |
| ZYT77 | 0.44798 | -0.91216 | -1.00282 | -0.50511 | 0.51924 | -0.27339 |
| ZYT78 | 0.48379 | 2.50044 | 0.23097 | -0.63810 | 0.37688 | -1.07828 |
| ZYT79 | 0.34267 | -0.30015 | -0.19485 | -0.58982 | 0.65400 | 1.18695 |
| ZYT80 | 0.45439 | -0.76369 | -0.19087 | -0.44243 | 0.51069 | 1.21270 |
| ZYT81 | 1.49764 | 0.16902 | -0.37809 | -0.35335 | 0.32901 | 0.00952 |
| ZYT82 | 1.48410 | -1.28141 | -1.22131 | -0.66256 | 1.11234 | 0.21364 |
| ZYT83 | 0.82720 | 0.61324 | -0.51871 | -0.86692 | 0.93560 | 0.81881 |
| ZYT84 | 1.15623 | 0.87677 | -0.83327 | -0.13233 | 0.76554 | 0.51416 |
| ZYT85 | 1.21124 | 1.53036 | 0.53381 | -0.45167 | 0.17314 | 0.19363 |
| ZYT86 | 1.42969 | 0.12467 | -0.19514 | -0.96324 | 0.16889 | -0.71216 |
| ZYT87 | 1.70431 | -0.30757 | 0.22302 | 0.43887 | -0.07670 | -0.78803 |
| ZYT88 | 0.91378 | 0.23637 | -0.52397 | 0.48775 | -0.15072 | -1.07661 |
| ZYT89 | 0.36462 | 0.60801 | 0.08564 | -0.51037 | 0.30063 | -0.31916 |
| ZYT90 | 1.67270 | -1.40630 | -0.42949 | -1.25641 | 0.45681 | 0.48595 |
| ZYT91 | 1.95276 | -0.26818 | 0.17813 | -0.64678 | 0.11793 | 0.39477 |
| ZYT92 | 0.12355 | -0.68956 | 0.22143 | -0.83434 | 0.49792 | 0.85588 |
| ZYT93 | 0.66374 | 0.18508 | -0.32712 | -0.03116 | 0.14870 | -0.90414 |
| ZYT94 | 1.28960 | 0.28441 | -0.08696 | -0.40427 | 0.75518 | 1.72919 |
| ZYT95 | 1.03656 | -0.01240 | -0.16940 | -0.23541 | 0.18218 | -0.08585 |
| ZYT96 | 0.50466 | -0.48690 | -1.16658 | -0.32062 | 1.02708 | 1.16539 |
| ZYT97 | 1.13965 | 0.95671 | -0.93735 | -0.99694 | 0.88602 | -0.13344 |
| ZYT98 | 1.13470 | -0.60677 | -0.62527 | -1.07069 | 1.10307 | 1.81626 |
| YMT99 | 1.03179 | 0.15692 | -0.05776 | -0.11428 | 0.40955 | 0.73463 |
| YMT100 | 0.68769 | -0.17321 | 1.44775 | 2.57769 | -0.40408 | 0.28166 |
| YMT101 | 1.44660 | 0.27905 | 2.10022 | 2.02116 | -1.11371 | -0.25420 |
| YMT102 | 0.98175 | -0.76417 | 1.02530 | 2.02674 | -0.46703 | -0.88563 |
| YMT103 | -0.03043 | 0.62362 | -0.44279 | 0.30776 | 0.15203 | -0.82957 |
| YMT104 | -0.28032 | 1.18996 | -0.19014 | -0.15549 | 0.64169 | -0.89559 |
| YMT105 | 1.31082 | -1.65400 | 0.53392 | 0.24690 | 0.07138 | 0.60058 |
| YMT106 | 0.21608 | -1.24699 | -1.00182 | 0.64625 | -0.01800 | -0.94980 |
| YMT107 | -0.24874 | 0.62447 | -0.48692 | -0.96357 | 0.55702 | -0.68659 |
| YMD108 | -1.06712 | 1.08333 | 0.70530 | -1.04844 | 0.63408 | 0.11988 |
| GQB109 | -0.09778 | -0.04307 | 2.62843 | -0.76319 | 0.37603 | 0.62587 |
| GQB110 | 0.07658 | 0.09571 | 1.30643 | -1.07816 | 0.06950 | 0.10108 |
| GQB111 | 0.05729 | 0.40743 | 1.84846 | -1.72090 | 0.13769 | 0.35679 |
| GQB112 | 0.18722 | 0.07739 | 1.65592 | -1.02680 | 0.13445 | -0.40402 |
| GQB113 | -0.07961 | -1.44514 | 1.48282 | -0.35392 | 0.57496 | 0.68645 |
| Continued Table S8 | | | | | | |
| Germplasm | Factor value | | | | | |
| PC1  (Leaf size) | PC2  (Leaf shape) | PC3  (Leaf teeth) | PC4  (Leaf shape) | PC5  (Leaf texture) | PC6  (Veins logarithmic) |
| GQB114 | -0.74724 | -1.48063 | 0.83793 | 0.46217 | -0.41015 | -1.83445 |
| GQB115 | 0.86581 | -0.43825 | 2.09379 | -0.32398 | -0.10155 | -0.82404 |
| GQB116 | -0.10802 | -2.04338 | 1.38097 | -0.00998 | -0.55195 | -1.30122 |
| GQB117 | -1.59006 | 1.23354 | 1.10066 | -0.75698 | -1.87757 | 1.50801 |
| GQB118 | -0.60471 | -1.40223 | 1.32922 | -0.87156 | 0.72738 | 0.19681 |
| GQB119 | -1.13250 | -1.37328 | 0.00555 | -1.23188 | -2.92239 | -1.39215 |
| GQB120 | -0.57939 | 0.71351 | 0.91253 | -1.16958 | 0.27352 | -0.57938 |
| GQB121 | -0.45297 | -2.14827 | 1.16208 | 0.44615 | -0.10239 | -1.34565 |
| GQB122 | -0.85617 | -0.81244 | 1.34619 | -0.97022 | 0.65094 | 0.82075 |
| GQB123 | -0.91491 | -1.34251 | 0.32855 | -0.45972 | -0.32595 | -2.03067 |
| GQB124 | -1.14826 | -1.54895 | 0.35262 | -0.39877 | -2.92610 | -1.34992 |
| GQB125 | -0.37061 | -0.00118 | 0.32518 | 0.49039 | -3.47805 | -1.47041 |
| GQB126 | 0.15197 | -1.16126 | 0.96449 | -2.03524 | 0.15083 | -0.24165 |
| GQB127 | -0.31050 | -0.34648 | 2.33223 | 0.09077 | -0.59539 | -2.29430 |
| GQB128 | -0.14963 | 0.02929 | 1.56143 | -1.78143 | -2.48732 | 0.48552 |
| GQB129 | -1.81067 | -2.61234 | -0.19860 | 0.78745 | 0.22624 | -0.73467 |
| GQB130 | -0.70749 | 0.08106 | 0.88789 | -1.91457 | -2.22755 | -0.15992 |
| LDB131 | -1.70916 | -0.14419 | 1.11085 | -1.31326 | 1.02678 | 0.80589 |
| LDB132 | -1.16862 | 1.04395 | 1.22629 | -1.19607 | 0.60297 | 0.66713 |
| LDB133 | -1.60292 | -0.53895 | 0.88051 | -0.99312 | 1.00760 | 0.94520 |
| LDB134 | -1.85670 | -0.55344 | 0.05909 | -1.73542 | 0.91091 | -0.00950 |
| LDB135 | -1.88020 | -0.60348 | 0.48879 | -0.74598 | 0.48535 | 0.05145 |
| LDB136 | -1.68303 | -0.48496 | 1.47689 | -0.56384 | 1.04091 | 0.95555 |
| LDB137 | -2.32383 | -0.15053 | -0.52517 | -1.16180 | 1.00933 | -0.48763 |
| LDB138 | -1.59867 | 0.68315 | 1.75472 | 0.38864 | 0.29003 | -0.87532 |
| LDB139 | -1.07432 | 0.27975 | 1.09870 | 1.67290 | -0.38809 | 0.12237 |
| LDB140 | -1.25557 | -0.42424 | 0.93767 | 0.63289 | 0.88521 | 0.91477 |
| LDB141 | -1.38057 | -0.57141 | 0.84489 | 0.42528 | 1.26439 | 1.67833 |
| LDB142 | -1.03108 | 1.81197 | 2.42587 | 0.29772 | 0.44930 | 1.61141 |
| LDB143 | 0.31798 | -0.25117 | 2.71627 | 1.72721 | -0.15931 | 1.46587 |
| LDB144 | -1.39312 | 1.14664 | 0.49522 | -1.37486 | 0.45444 | -1.14814 |
| LDB145 | -0.67977 | -1.37628 | 0.92529 | 0.75756 | -0.36372 | -1.33746 |

**Table S9** Genetic concordances estimates in the 145 ancient tea germplasm by using 15 SSR markers

|  |  |  |
| --- | --- | --- |
| Numerical | Maximum and Number | Minimum and Number |
| Samples |
| Genetic concordance between arbor | 0.9529  (37-25) | 0.5882  (102-48) |
| Genetic concordance between bush | 0.9294  (126-124) | 0.6118  (132-113) |
| Genetic concordance between arbor and bush | 0.9176  (108-105) | 0.5765  (127-48) |

**Table S10** Genetic distance estimates in the 145 ancient tea germplasm by using 15 SSR markers

|  |  |  |
| --- | --- | --- |
| Numerical | Maximum and Number | Minimum and Number |
| Samples |
| Genetic concordance between arbor | 0.5306  (48-102) | 0.0482  (25-37) |
| Genetic concordance between bush | 0.4914  (132-113) | 0.0732  (126-124) |
| Genetic concordance between arbor and bush | 0.5508  (127-48) | 0.0859  (108-105) |

**Table S11** Genetic diversity parameter analysis for 5 populations of ancient tea germplasm using 15 SSR markers

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| parameter | Na | Ne | H | I | N.P.B | PPB（%） |
| Site |
| Landong | 1.9188 | 1.2264 | 0.1595 | 0.2730 | 79 | 91.88 |
| Zenya | 1.9612 | 1.2238 | 0.1637 | 0.2840 | 82 | 96.12 |
| Yangmeng | 1.6659 | 1.2283 | 0.1524 | 0.2499 | 57 | 66.59 |
| Guqi | 1.8680 | 1.2329 | 0.1603 | 0.2719 | 74 | 86.80 |
| Landong | 1.7745 | 1.2325 | 0.1591 | 0.2652 | 66 | 77.45 |

Na-Number of different alleles; Ne-number of effective alleles; H-Nei’s genetic diversity index; I-Shannon’s Information Index; N.P.B-The number of polymorphic loci; PPB- The percentage of polymorphic loci.