**Supplementary Tables**

Table S1- Physical characteristics of the Soil

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **soil texture** | **Sand percentage** | **Silt percentage** | **Clay percentage** | **()** | **FC (g.g-1)** | **pwp (g.g-1)** |
| Sandy-loam | | 58.16 | 26 | 15.84 | 1.22 | 28.17 | 13.47 |

Table S2- Analysis of variance of morphological traits in rapeseed cultivars

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  | **mean squares** |  |
| **SOV** | **df** | **days to flowering** | **plant height** | **grain yield** |
| **stress** | 2 | 2482.00\*\* | 2080.19\*\* | 170.56\*\* |
| **genotype** | 11 | 29679.88\*\* | 1661.01\*\* | 255.22\*\* |
| **genotype× stress** | 22 | 2213.12\*\* | 1017.94\*\* | 18.29\*\* |
| **error** | 72 | 91.16 | 161.14 | 3.85 |
| **cv (%)** |  | 4.66 | 14.73 | 25.13 |
| **general Heritability** |  | 0.8146 | 31.81 | 81.09 |

ns, \*, and \*\* indicate not significant and significant at 5% and 1% levels of probability, respectively.

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| Table S3- Analysis of variance of physiological traits in rapeseed cultivars | | | | | | | | | | | | | | |  |
| **mean squares** | | | | | | | | | | | | | | |  |
| **Protein%** | **Anthocyanin** | **Proline** | **Total carbohydrates** | **Carotenoid** | **total Chlorophyll** | | **Chlorophyll b** | **Chlorophyll a** | **RWC** | **maximum fluorescence (Fm)** | **initial fluorescence (F0)** | **quantum yield potential**  **(Fv/Fm)** | **SPAD** | **df** | **SOV** |
| 0.036\*\* | 39.87\*\* | 5312.73\*\* | 1.67\*\* | 5.87\*\* | 561.51\*\* | 12.83ns | | 437.61\*\* | 4189.95\*\* | 657289.7\*\* | 31680.15\*\* | 0.007\*\* | 1689.31\*\* | 2 | **stress** |
| 0.011ns | 5.40ns | 54.25\*\* | 0.10\*\* | 2.00\* | 90.65\*\* | 19.94\*\* | | 38.51ns | 80.25\*\* | 9651.3ns | 612.45ns | 0.001ns | 179.51\*\* | 13 | **genotype** |
| 0.003ns | 6.85ns | 31.29ns | 0.07\*\* | 2.15\*\* | 70.59\* | 18.75\*\* | | 27.98ns | 62.03\*\* | 17985.8\* | 1416.46ns | 0.002ns | 25.40\*\* | 26 | **genotype× stress** |
| 0.004 | 7.48 | 21.91 | 0.03 | 0.92 | 37.16 | 4.59 | | 22.43 | 25.10 | 9550.7 | 995.22 | 0.001 | 12.01 | 84 | **error** |
| 16.78 | 17 | 29.40 | 25.96 | 36.57 | 14.15 | 24.64 | | 13.77 | 6.71 | 16.03 | 27.59 | 3.97 | 6.52 |  | **cv (%)** |
| 33.33 | - | 21.69 | 21.21 | 12.90 | 17.68 | 20.09 | | 13.09 | 20.69 | 0.158 | - | - | 65.52 |  | **general Heritability** |
| ns, \*, and \*\* indicate not significant and significant at 5% and 1% levels of probability, respectively. | | | | | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table S4- Discriminant analysis for confirmation of cutting position in dendrograms depicted by physiological traits | | | | | | | | |
| Levels studied | function | Wilks' lambda | df | Eigenvalue | Percentage of variance | Number of approved groups | groups | members of each group |
| control | first | \*\*0.03 | 9 | 32.88 | 100% | 2 | 1 | 10 |
| 2 | 4 |
| first level of stress | first | \*\*0.0001 | 22 | 245.25 | 81.4% | 3 | 1 | 7 |
| 2 | 5 |
| second | \*\*0.018 | 10 | 55.95 | 18.6% |
| 3 | 2 |
| second level of stress | first | \*0.036 | 12 | 26.92 | 100% | 2 | 1 | 7 |
| 2 | 7 |

Table S5- Relative variance and cumulative variance in the PCA using characters to classify rapeseed accessions by ISSR.

|  |  |  |  |
| --- | --- | --- | --- |
| Axis | 1 | 2 | 3 |
| Relative variance | 28.70 | 19.15 | 16.83 |
| Cumulative variance | 28.70 | 47.84 | 64.67 |

Table S6 - Significance difference of oil content using t test

|  |  |  |  |
| --- | --- | --- | --- |
| level | mean | standard deviation | numbert |
| control | 32.12 | 2.717 | \*\*8.232 |
| stress | 23.27 | 2.542 | \*\*8.232 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Table S7- Canonical correlations between molecular markers and physiological traits and their canonical variates, Squared Canonical correlations and statistical indices | | | | | | | | | | | | | | | |  | | |
| Canonical  variates | Canonical correlations | | | Squared Canonical correlations | | | F values | | | P Values | | | Wilks' lambda | | | Proportion of variability explained (%) | | |
|  | Control | Stress1 | Stress2 | Control | Stress1 | Stress2 | Control | Stress1 | Stress2 | Control | Stress1 | Stress2 | Control | Stress1 | Stress2 | Control | Stress1 | Stress2 |
| V1U1 | 0.977 | 0.9629 | 0.9662 | 0.955 | 0.9272 | 0.9335 | 1.64 | 1.58 | 1.81 | 0.0008 | 0.0015 | 0.0001 | 0.000306 | 0.0015 | 0.00001 | 21.819 | 18.842 | 18.404 |
| V2U2 | 0.8358 | 0.8911 | 0.9446 | 0.6986 | 0.7941 | 0.8923 | 1.04 | 1.22 | 1.47 | 0.3990 | 0.1029 | 0.0068 | 0.00686 | 0.00280 | 0.001044 | 15.957 | 14.346 | 16.874 |
| V3U3 | 0.7994 | 0.8482 | 0.9162 | 0.6390 | 0.7196 | 0.8394 | 0.93 | 1.08 | 1.20 | 0.6555 | 0.3276 | 0.1318 | 0.02277 | 0.00959 | 0.007683 | 14.596 | 13.422 | 14.296 |
| V4U4 | 0.7819 | 0.8123 | 0.8564 | 0.6114 | 0.6599 | 0.7334 | 0.82 | 0.96 | 0.97 | 0.8531 | 0.5885 | 0.5771 | 0.06308 | 0.02837 | 0.028684 | 13.966 | 13.058 | 12.844 |
| V5U5 | 0.7229 | 0.7588 | 0.7704 | 0.5225 | 0.5758 | 0.5935 | 0.65 | 0.84 | 0.80 | 0.9760 | 0.8125 | 0.8783 | 0.16235 | 0.07968 | 0.083807 | 11.936 | 10.976 | 11.345 |
| V6U6 | 0.5759 | 0.6858 | 0.6880 | 0.3317 | 0.4704 | 0.4734 | 0.49 | 0.73 | 0.70 | 0.9983 | 0.9259 | 0.9551 | 0.34006 | 0.17373 | 0.200012 | 7.576 | 8.782 | 7.797 |
| V7U7 | 0.4559 | 0.6160 | 0.6540 | 0.2079 | 0.3795 | 0.4277 | 0.41 | 0.64 | 0.64 | 0.9992 | 0.9635 | 0.9725 | 0.50885 | 0.30648 | 0.332966 | 4.749 | 7.577 | 6.921 |
| V8U8 | 0.4189 | 0.5467 | 0.5937 | 0.1755 | 0.2989 | 0.3525 | 0.38 | 0.57 | 0.56 | 0.9982 | 0.9767 | 0.9873 | 0.64243 | 0.48936 | 0.515759 | 4.009 | 5.448 | 5.837 |
| V9U9 | 0.3592 | 0.5098 | 0.5505 | 0.1290 | 0.2599 | 0.3031 | 0.33 | 0.50 | 0.46 | 0.9968 | 0.9808 | 0.9942 | 0.77922 | 0.66920 | 0.735648 | 2.947 | 3.622 | 2.828 |
| V10U10 | 0.2958 | 0.4035 | 0.3810 | 0.0875 | 0.1628 | 0.1452 | 0.25 | 0.35 | 0.31 | 0.9947 | 0.9925 | 0.9991 | 0.89467 | 0.81474 | 0.860243 | 1.999 | 2.696 | 1.566 |
| V11U11 | 0.1316 | 0.2423 | 0.2763 | 0.0173 | 0.0587 | 0.0763 | 0.09 | 0.18 | 0.24 | 0.9972 | 0.9970 | 0.9983 | 0.98050 | 0.93972 | 0.935249 | 0.396 | 1.034 | 0.670 |
| V12U12 | 0.0470 | 0.1019 | 0.2298 | 0.0022 | 0.0104 | 0.0528 | 0.03 | 0.07 | 0.21 | 0.9695 | 0.9910 | 0.9884 | 0.99779 | 0.99020 | 0.968471 | 0.051 | 0.199 | 0.478 |
| V13U13 | 0 | 0 | 0.1030 | 0 | 0 | 0.0106 | - | - | 0.09 | - | - | 0.9632 | - | - | 0.992794 | - | - | 0.141 |

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| Table S8- Canonical redundancy analysis and canonical structure (canonical loadings) between first canonical variates and original variables. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Explained by their first Opposite canonical variate | | | | | | | | | | | | | | Explained by their first canonical variate | | | | | | | | | | | | |  | | |  | | | | |
| 0.2138 | | | | | | | | | | | | | | 0.2238 | | | | | | | | | | | | | Control | | | Standardized Variance of the Physiological traits | | | | |
| 0.1328 | | | | | | | | | | | | | | 0.1432 | | | | | | | | | | | | | First level of stress | | |
| 0.1095 | | | | | | | | | | | | | | 0.1173 | | | | | | | | | | | | | Second level of stress | | |
| 0.0935 | | | | | | | | | | | | | | 0.0979 | | | | | | | | | | | | | Control | | | Standardized Variance of the Molecular markers | | | | |
| 0.0809 | | | | | | | | | | | | | | 0.0873 | | | | | | | | | | | | | First level of stress | | |
| 0.0879 | | | | | | | | | | | | | | 0.0941 | | | | | | | | | | | | | Second level of stress | | |
| m9l38 | m9l37 | | m9l35 | | m9l34 | m9l33 | | m8l31 | m7l28 | | m7l27 | | m7l24 | | m6l23 | .  m5l19 | | m5l18 | m5l17 | m5l16 | | m5l15 | m4l10 | | m3l8 | | | m3l7 | m3l4 | | m2l1 | | Marker | |
| -0.4819 | -0.1404 | | -0.126 | | 0.1930 | 0.1123 | | 0.3230 | -0.135 | | 0.0847 | | -0.202 | | 0.3399 | 0.5297 | | -0.261 | -0.0435 | -0.255 | | 0.3342 | 0.2353 | | -0.2072 | | | 0.4884 | 0.0337 | | 0.0565 | |  | |
| Control | Function 1 |
| -0.513 | 0.0096 | | 0.2285 | | 0.1507 | 0.1397 | | 0.2972 | 0.1452 | | -0.177 | | -0.0052 | | 0.1294 | 0.2532 | | -0.4051 | 0.1474 | -0.0937 | | 0.3615 | 0.5571 | | -0.1108 | | | 0.0345 | -0.093 | | -0.149 | | First level of stress |
| -0.569 | 0.0105 | | 0.6754 | | -0.315 | -0.273 | | 0.4513 | 0.0775 | | -0.393 | | 0.0650 | | 0.1318 | -0.270 | | -0.361 | 0.3507 | -0.164 | | 0.5808 | 0.6063 | | 0.0886 | | | -0.152 | 0.0171 | | 0.0528 | | Second level of stress |
| Protein% | | Anthocyanin | | | Proline | | Total carbohydrates | | | Carotenoid | | total Chlorophyll | | | Chlorophyll b | | Chlorophyll a | | RWC | | maximum fluorescence (Fm) | | | initial fluorescence (F0) | | quantum yield potential  (Fv/Fm) | | | SPAD | | | Physiological traits | | |
| -0.2555 | | 0.2085 | | 0.5235 | | | 0.1167 | | | -0.3900 | | 0.6777 | | | 0.6614 | | 0.4765 | | -0.1993 | | -0.6335 | | | -0.1790 | | -0.1583 | | | 0.8596 | | | Control | | Function 1 |
| -0.3765 | | -0.0941 | | 0.2888 | | | -0.2965 | | | 0.5862 | | 0.3879 | | | 0.3388 | | 0.3993 | | -0.0920 | | -0.2992 | | | -0.236 | | -0.211 | | | 0.7568 | | | First level of stress | |
| 0.2246 | | -0.1553 | | 0.0089 | | | -0.6700 | | | 0.0440 | | 0.0489 | | | 0.1438 | | 0.0548 | | -0.5534 | | 0.2385 | | | 0.3035 | | -0.2959 | | | 0.6559 | | | Second level of stress | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Continuation of Table S8- Canonical redundancy analysis and canonical structure (canonical loadings) between first canonical variates and original variables. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Explained by their first opposite canonical variate | | | | | | | | | | | | | | Explained by their first canonical variate | | | | | | | | | | | | | |  | |  | | | | |
| 0.2138 | | | | | | | | | | | | | | 0.2238 | | | | | | | | | | | | | | Control | | Standardized Variance of the Physiological traits | | | | |
| 0.1328 | | | | | | | | | | | | | | 0.1432 | | | | | | | | | | | | | | First level of stress | |
| 0.1095 | | | | | | | | | | | | | | 0.1173 | | | | | | | | | | | | | | Second level of stress | |
| 0.0935 | | | | | | | | | | | | | | 0.0979 | | | | | | | | | | | | | | Control | | Standardized Variance of the Molecular markers | | | | |
| 0.0809 | | | | | | | | | | | | | | 0.0873 | | | | | | | | | | | | | | First level of stress | |
| 0.0879 | | | | | | | | | | | | | | 0.0941 | | | | | | | | | | | | | | Second level of stress | |
| m17l69 | m17l67 | | m17l66 | | m17l65 | m16l62 | | m16l60 | m14l58 | | m14l57 | | m14l54 | | m14l53 | m13l51 | | m13l50 | m13l49 | | m11l46 | | m11l45 | m11l43 | | m11l42 | | m11l41 | m11l40 | | m9l39 | Marker | | |
| 0.4493 | 0.5499 | | 0.4013 | | 0.4662 | 0.1586 | | 0.2409 | -0.2319 | | 0.1427 | | -0.0486 | | -0.0377 | -0.6426 | | -0.3919 | -0.6630 | | -0.0861 | | 0.0861 | -0.3422 | | 0.3169 | | 0.2758 | 0.2758 | | 0.1259 | Control | | Function1 |
| 0.4337 | 0.2008 | | 0.3639 | | 0.3208 | 0.1276 | | -0.286 | 0.1582 | | 0.2512 | | 0.19 | | -0.198 | -0.382 | | 0.0308 | -0.276 | | -0.401 | | 0.4014 | -0.1118 | | 0.1648 | | 0.6004 | 0.6004 | | 0.3397 | First level of stress | |
| 0.2968 | 0.3514 | | 0.1941 | | -0.2723 | 0.0293 | | -0.1781 | -0.1085 | | -0.1498 | | 0.1390 | | -0.1320 | -0.158 | | 0.0087 | 0.1054 | | -0.026 | | 0.0257 | -0.157 | | -0.106 | | 0.4174 | 0.4174 | | 0.1461 | Second level of stress | |
| Protein% | | Anthocyanin | | | Proline | | Total carbohydrates | | | Carotenoid | | total Chlorophyll | | | Chlorophyll b | | Chlorophyll a | | | RWC | | maximum fluorescence (Fm) | | | initial fluorescence (F0) | | quantum yield potential  (Fv/Fm) | | SPAD | | Physiological traits | | | |
| -0.2555 | | 0.2085 | | 0.5235 | | | 0.1167 | | | -0.3900 | | 0.6777 | | | 0.6614 | | 0.4765 | | | -0.1993 | | -0.6335 | | | -0.1790 | | -0.1583 | | 0.8596 | | Control | | Function1 | |
| -0.3765 | | -0.0941 | | 0.2888 | | | -0.2965 | | | 0.5862 | | 0.3879 | | | 0.3388 | | 0.3993 | | | -0.0920 | | -0.2992 | | | -0.236 | | -0.211 | | 0.7568 | | First level of stress | |
| 0.2246 | | -0.1553 | | 0.0089 | | | -0.6700 | | | 0.0440 | | 0.0489 | | | 0.1438 | | 0.0548 | | | -0.5534 | | 0.2385 | | | 0.3035 | | -0.2959 | | 0.6559 | | Second level of stress | |

Continuation of Table S8- Canonical redundancy analysis and canonical structure (canonical loadings) between first canonical variates and original variables.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Explained by their first opposite canonical variate | | | | | | | | | | | | | | Explained by their first canonical variate | | | | | | | | | | | | | |  | | | | | | | | |
| 0.2138 | | | | | | | | | | | | | | 0.2238 | | | | | | | | | | | | | | Control | | | | Standardized Variance of the Physiological traits | | | | | | |
| 0.1328 | | | | | | | | | | | | | | 0.1432 | | | | | | | | | | | | | | First level of stress | | | |
| 0.1095 | | | | | | | | | | | | | | 0.1173 | | | | | | | | | | | | | | Second level of stress | | | |
| 0.0935 | | | | | | | | | | | | | | 0.0979 | | | | | | | | | | | | | | Control | | | | Standardized Variance of the Molecular markers | | | | | | |
| 0.0809 | | | | | | | | | | | | | | 0.0873 | | | | | | | | | | | | | | First level of stress | | | |
| 0.0879 | | | | | | | | | | | | | | 0.0941 | | | | | | | | | | | | | | Second level of stress | | | |
| m23l106 | m23l104 | | m23l101 | | m21l99 | m20l97 | | m20l96 | m20l94 | | m20l91 | | m19l89 | | m19l87 | m19l86 | | m19l85 | m19l84 | m18l80 | | m18l78 | m18l76 | | m18l75 | | m17l73 | | m17l72 | | m17l70 | | | Marker | | | |
| 0.4808 | 0.4954 | | -0.0553 | | 0.3360 | 0.2209 | | 0.2094 | -0.515 | | 0.3035 | | 0.0808 | | 0.3741 | -0.256 | | 0.0005 | -0.0022 | 0.1393 | | 0.5323 | 0.3142 | | -0.152 | | -0.092 | | 0.5117 | | -0.035 | | | Control | | Function 1 | |
| 0.4452 | 0.3604 | | -0.1643 | | 0.1235 | -0.155 | | 0.154 | -0.495 | | 0.168 | | -0.242 | | -0.089 | -0.592 | | -0.149 | -0.353 | 0.0394 | | 0.5245 | 0.3126 | | 0.0874 | | 0.212 | | 0.3748 | | 0.0803 | | | First level of stress | |
| 0.0816 | 0.0173 | | -0.1337 | | -0.294 | -0.3324 | | -0.4219 | -0.333 | | -0.191 | | -0.6035 | | -0.4855 | -0.427 | | -0.3894 | -0.4646 | -0.182 | | 0.5972 | 0.5109 | | -0.057 | | 0.0285 | | -0.0745 | | -0.082 | | | Second level of stress | |
| Protein% | | Anthocyanin | | | Proline | | Total carbohydrates | | | Carotenoid | | total Chlorophyll | | | Chlorophyll b | | Chlorophyll a | | RWC | | maximum fluorescence (Fm) | | | initial fluorescence (F0) | | quantum yield potential  (Fv/Fm) | | | | SPAD | | | Physiological traits | | | | | |
| -0.2555 | | 0.2085 | | 0.5235 | | | 0.1167 | | | -0.3900 | | 0.6777 | | | 0.6614 | | 0.4765 | | -0.1993 | | -0.6335 | | | -0.1790 | | -0.1583 | | | | 0.8596 | | | Control | | Function  1 | | | |
| -0.3765 | | -0.0941 | | 0.2888 | | | -0.2965 | | | 0.5862 | | 0.3879 | | | 0.3388 | | 0.3993 | | -0.0920 | | -0.2992 | | | -0.236 | | -0.211 | | | | 0.7568 | | | First level of stress | |
| 0.2246 | | -0.1553 | | 0.0089 | | | -0.6700 | | | 0.0440 | | 0.0489 | | | 0.1438 | | 0.0548 | | -0.5534 | | 0.2385 | | | 0.3035 | | -0.2959 | | | | 0.6559 | | | Second level of stress | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table S9- Squared Multiple Correlations between the Molecular markers, the Physiological traits and the First M their opposite canonical variables | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| m9l38 | m9l37 | | m9l35 | | m9l34 | m9l33 | | m8l31 | m7l28 | | m7l27 | | m7l24 | m6l23 | m5l19 | | m5l18 | m5l17 | m5l16 | | m5l15 | m4l10 | | m3l8 | | m3l7 | m3l4 | | m2l1 | | Marker | | |
| 0.2218 | 0.0188 | | 0.0151 | | 0.0356 | 0.0120 | | 0.0996 | 0.0175 | | 0.0069 | | 0.0390 | 0.1104 | 0.2681 | | 0.0651 | 0.0018 | 0.0621 | | 0.1067 | 0.0529 | | 0.0410 | | 0.2279 | 0.0011 | | 0.0031 | | Control | | M=1 |
| 0.2440 | 0.0001 | | 0.0484 | | 0.0211 | 0.0181 | | 0.0819 | 0.0196 | | 0.0293 | | 0 | 0.0155 | 0.0594 | | 0.1521 | 0.0201 | 0.0081 | | 0.1212 | 0.2878 | | 0.0114 | | 0.0011 | 0.0080 | | 0.0200 | | First level of stress | |
| 0.3029 | 0.0001 | | 0.4259 | | 0.0927 | 0.0699 | | 0.1901 | 0.0056 | | 0.1445 | | 0.0039 | 0.0162 | 0.0681 | | 0.1214 | 0.1148 | 0.0251 | | 0.3149 | 0.3432 | | 0.0073 | | 0.0216 | 0.0003 | | 0.0026 | | Second level of stress | |
| Protein% | | Anthocyanin | | | Proline | | Total carbohydrates | | | Carotenoid | | total Chlorophyll | | Chlorophyll b | | Chlorophyll a | | RWC | | maximum fluorescence (Fm) | | | initial fluorescence (F0) | | quantum yield potential  (Fv/Fm) | | | SPAD | | Physiological traits | | | | |
| 0.0624 | | 0.0415 | | 0.2618 | | | 0.0130 | | | 0.1453 | | 0.4387 | | 0.4179 | | 0.2169 | | 0.0379 | | 0.3834 | | | 0.0306 | | 0.0239 | | | 0.7059 | | Control | | M=1 | | |
| 0.1314 | | 0.0082 | | 0.0774 | | | 0.0815 | | | 0.3187 | | 0.1395 | | 0.1064 | | 0.1479 | | 0.0078 | | 0.0830 | | | 0.0516 | | 0.0414 | | | 0.5312 | | First level of stress | |
| 0.0471 | | 0.0225 | | 0.0001 | | | 0.4191 | | | 0.0018 | | 0.0022 | | 0.0193 | | 0.0028 | | 0.2859 | | 0.0531 | | | 0.0860 | | 0.0816 | | | 0.4016 | | Second level of stress | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Continuation of Table S9- Squared Multiple Correlations between the Molecular markers, the Physiological traits and the First M their Opposite Canonical Variables | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| m17l69 | m17l67 | | m17l66 | | m17l65 | m16l62 | | m16l60 | m14l58 | | m14l57 | | m14l54 | m14l53 | m13l51 | | m13l50 | m13l49 | m11l46 | | m11l45 | m11l43 | | m11l42 | | m11l41 | m11l40 | | m9l39 | | Marker | | |
| 0.1928 | 0.2888 | | 0.1538 | | 0.2076 | 0.0240 | | 0.0554 | 0.0514 | | 0.0195 | | 0.0023 | 0.0014 | 0.3945 | | 0.1468 | 0.4199 | 0.0071 | | 0.0071 | 0.1119 | | 0.0960 | | 0.0727 | 0.0727 | | 0.0151 | | Control | | M=1 |
| 0.1744 | 0.0374 | | 0.1228 | | 0.0954 | 0.0151 | | 0.0758 | 0.0232 | | 0.0585 | | 0.0335 | 0.0364 | 0.1353 | | 0.0009 | 0.0706 | 0.1494 | | 0.1494 | 0.0116 | | 0.0252 | | 0.3343 | 0.3343 | | 0.1070 | | First level of stress | |
| 0.0645 | 0.1153 | | 0.0352 | | 0.0692 | 0.0008 | | 0.0296 | 0.0110 | | 0.0209 | | 0.0180 | 0.0163 | 0.0234 | | 0.0001 | 0.0104 | 0.0006 | | 0.0006 | 0.0230 | | 0.0105 | | 0.1627 | 0.1627 | | 0.0199 | | Second level of stress | |
| Protein% | | Anthocyanin | | | Proline | | Total carbohydrates | | | Carotenoid | | total Chlorophyll | | Chlorophyll b | | Chlorophyll a | | RWC | | maximum fluorescence (Fm) | | | initial fluorescence (F0) | | quantum yield potential  (Fv/Fm) | | | SPAD | | Physiological traits | | | | |
| 0.0624 | | 0.0415 | | 0.2618 | | | 0.0130 | | | 0.1453 | | 0.4387 | | 0.4179 | | 0.2169 | | 0.0379 | | 0.3834 | | | 0.0306 | | 0.0239 | | | 0.7059 | | Control | | M=1 | | |
| 0.1314 | | 0.0082 | | 0.0774 | | | 0.0815 | | | 0.3187 | | 0.1395 | | 0.1064 | | 0.1479 | | 0.0078 | | 0.0830 | | | 0.0516 | | 0.0414 | | | 0.5312 | | First level of stress | |
| 0.0471 | | 0.0225 | | 0.0001 | | | 0.4191 | | | 0.0018 | | 0.0022 | | 0.0193 | | 0.0028 | | 0.2859 | | 0.0531 | | | 0.0860 | | 0.0816 | | | 0.4016 | | Second level of stress | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Continuation of Table S9- Squared Multiple Correlations between the Molecular markers, the Physiological traits and the First M their Opposite Canonical Variables | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| m23l106 | m23l104 | | m23l101 | | m21l99 | m20l97 | | m20l96 | m20l94 | | m20l91 | | m19l89 | m19l87 | m19l86 | | m19l85 | m19l84 | m18l80 | | m18l78 | m18l76 | | m18l75 | | m17l73 | m17l72 | | m17l70 | | Marker | | |
| 0.2209 | 0.2345 | | 0.0029 | | 0.1078 | 0.0466 | | 0.0419 | 0.2539 | | 0.0880 | | 0.0062 | 0.1337 | 0.0629 | | 0.0000 | 0.0000 | 0.0185 | | 0.2707 | 0.0943 | | 0.0220 | | 0.0082 | 0.2501 | | 0.0011 | | Control | | M=1 |
| 0.1838 | 0.1204 | | 0.0250 | | 0.0141 | 0.0223 | | 0.0220 | 0.2276 | | 0.0262 | | 0.0545 | 0.0073 | 0.3253 | | 0.0205 | 0.1157 | 0.0014 | | 0.2551 | 0.0906 | | 0.0071 | | 0.0417 | 0.1303 | | 0.0060 | | First level of stress | |
| 0.0062 | 0.0003 | | 0.0167 | | 0.0806 | 0.1031 | | 0.1662 | 0.1037 | | 0.0341 | | 0.3400 | 0.2201 | 0.1701 | | 0.1416 | 0.2015 | 0.0309 | | 0.3329 | 0.2437 | | 0.0030 | | 0.0008 | 0.0052 | | 0.0063 | | Second level of stress | |
| Protein% | | Anthocyanin | | | Proline | | Total carbohydrates | | | Carotenoid | | total Chlorophyll | | Chlorophyll b | | Chlorophyll a | | RWC | | maximum fluorescence (Fm) | | | initial fluorescence (F0) | | quantum yield potential  (Fv/Fm) | | | SPAD | | Physiological traits | | | | |
| 0.0624 | | 0.0415 | | 0.2618 | | | 0.0130 | | | 0.1453 | | 0.4387 | | 0.4179 | | 0.2169 | | 0.0379 | | 0.3834 | | | 0.0306 | | 0.0239 | | | 0.7059 | | Control | | M=1 | | |
| 0.1314 | | 0.0082 | | 0.0774 | | | 0.0815 | | | 0.3187 | | 0.1395 | | 0.1064 | | 0.1479 | | 0.0078 | | 0.0830 | | | 0.0516 | | 0.0414 | | | 0.5312 | | First level of stress | |
| 0.0471 | | 0.0225 | | 0.0001 | | | 0.4191 | | | 0.0018 | | 0.0022 | | 0.0193 | | 0.0028 | | 0.2859 | | 0.0531 | | | 0.0860 | | 0.0816 | | | 0.4016 | | Second level of stress | |