**Table S1 Correlation analysis of stomata-related traits in various parts of glumes**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | SDt | SDm | SDb | SLt | SLm | SLb | SWt | SWm | SWb | PCIt | PCIm | PCIb | SAt | SAm | SAb | SRAt | SRAm | SRAb |
| SDt | 1 | 0.587\*\* | 0.295\*\* | -0.389\*\* | -0.289\*\* | -0.208\* | -0.099 | -0.044 | -0.074 | 0.679\*\* | 0.362\*\* | 0.154 | -0.124 | -0.200\* | -0.184\* | 0.829\*\* | 0.436\*\* | 0.179\* |
| SDm | 0.525\*\* | 1 | 0.495\*\* | -0.384\*\* | -0.380\*\* | -0.226\*\* | -0.077 | -0.027 | 0.034 | 0.282\*\* | 0.699\*\* | 0.334\*\* | -0.088 | -0.245\*\* | -0.109 | 0.421\*\* | 0.797\*\* | 0.405\*\* |
| SDb | 0.254\*\* | 0.500\*\* | 1 | -0.250\*\* | -0.384\*\* | -0.283\*\* | 0.137 | 0.044 | 0.032 | 0.089 | 0.191\* | 0.784\*\* | -0.074 | -0.194\* | -0.14 | 0.261\*\* | 0.347\*\* | 0.853\*\* |
| SLt | -0.446\*\* | -0.352\*\* | -0.294\*\* | 1 | 0.529\*\* | 0.394\*\* | 0.026 | 0.125 | 0.032 | 0.408\*\* | 0.02 | 0.014 | 0.206\* | 0.397\*\* | 0.266\*\* | 0.021 | -0.121 | -0.093 |
| SLm | -0.448\*\* | -0.481\*\* | -0.461\*\* | 0.542\*\* | 1 | 0.459\*\* | 0.105 | 0.231\*\* | 0.112 | 0.139 | 0.391\*\* | -0.072 | 0.224\*\* | 0.743\*\* | 0.364\*\* | -0.034 | 0.105 | -0.165\* |
| SLb | -0.385\*\* | -0.397\*\* | -0.366\*\* | 0.475\*\* | 0.621\*\* | 1 | 0.155 | 0.145 | 0.055 | 0.097 | 0.122 | 0.367\*\* | 0.065 | 0.368\*\* | 0.657\*\* | 0.007 | 0.015 | 0.082 |
| SWt | -0.111 | 0.075 | 0.083 | 0.149 | 0.215\*\* | 0.166\* | 1 | 0.233\*\* | 0.367\*\* | -0.085 | -0.004 | 0.250\*\* | -0.096 | 0.223\*\* | 0.381\*\* | 0.325\*\* | 0.063 | 0.342\*\* |
| SWm | 0.047 | 0.093 | 0.128 | 0.154 | 0.135 | 0.206\* | 0.571\*\* | 1 | 0.285\*\* | 0.052 | 0.139 | 0.144 | 0.02 | 0.821\*\* | 0.306\*\* | 0.096 | 0.478\*\* | 0.204\* |
| SWb | 0.004 | 0.024 | 0.021 | 0.155 | 0.174\* | 0.253\*\* | 0.489\*\* | 0.584\*\* | 1 | -0.05 | 0.117 | 0.086 | 0.151 | 0.258\*\* | 0.787\*\* | 0.089 | 0.196\* | 0.440\*\* |
| PCIt | 0.621\*\* | 0.219\*\* | -0.008 | 0.419\*\* | 0.017 | 0.018 | 0.014 | 0.181\* | 0.133 | 1 | 0.386\*\* | 0.152 | 0.051 | 0.118 | 0.021 | 0.835\*\* | 0.342\*\* | 0.095 |
| PCIm | 0.212\*\* | 0.680\*\* | 0.151 | 0.07 | 0.306\*\* | 0.091 | 0.251\*\* | 0.211\*\* | 0.161\* | 0.272\*\* | 1 | 0.269\*\* | 0.086 | 0.321\*\* | 0.166\* | 0.389\*\* | 0.870\*\* | 0.268\*\* |
| PCIb | -0.042 | 0.191\* | 0.712\*\* | 0.069 | 0.008 | 0.386\*\* | 0.205\* | 0.284\*\* | 0.212\*\* | 0.005 | 0.213\*\* | 1 | -0.027 | 0.057 | 0.301\*\* | 0.267\*\* | 0.352\*\* | 0.888\*\* |
| SAt | -0.313\*\* | -0.121 | -0.082 | 0.620\*\* | 0.439\*\* | 0.370\*\* | 0.867\*\* | 0.530\*\* | 0.466\*\* | 0.220\*\* | 0.227\*\* | 0.198\* | 1 | 0.141 | 0.156 | -0.079 | 0.005 | 0.009 |
| SAm | -0.199\* | -0.184\* | -0.146 | 0.407\*\* | 0.634\*\* | 0.490\*\* | 0.561\*\* | 0.851\*\* | 0.543\*\* | 0.152 | 0.326\*\* | 0.224\*\* | 0.647\*\* | 1 | 0.421\*\* | 0.047 | 0.386\*\* | 0.043 |
| SAb | -0.195\* | -0.185\* | -0.168\* | 0.356\*\* | 0.443\*\* | 0.691\*\* | 0.453\*\* | 0.538\*\* | 0.873\*\* | 0.106 | 0.163\* | 0.352\*\* | 0.539\*\* | 0.651\*\* | 1 | 0.074 | 0.162\* | 0.392\*\* |
| SRAt | 0.681\*\* | 0.392\*\* | 0.181\* | 0.079 | -0.076 | -0.079 | 0.553\*\* | 0.452\*\* | 0.354\*\* | 0.759\*\* | 0.373\*\* | 0.118 | 0.476\*\* | 0.315\*\* | 0.224\*\* | 1 | 0.431\*\* | 0.289\*\* |
| SRAm | 0.339\*\* | 0.763\*\* | 0.358\*\* | -0.052 | -0.022 | -0.03 | 0.435\*\* | 0.645\*\* | 0.379\*\* | 0.293\*\* | 0.810\*\* | 0.329\*\* | 0.314\*\* | 0.491\*\* | 0.264\*\* | 0.557\*\* | 1 | 0.412\*\* |
| SRAb | 0.106 | 0.317\*\* | 0.754\*\* | -0.018 | -0.112 | 0.135 | 0.383\*\* | 0.481\*\* | 0.597\*\* | 0.081 | 0.245\*\* | 0.851\*\* | 0.294\*\* | 0.312\*\* | 0.513\*\* | 0.329\*\* | 0.499\*\* | 1 |

SD, stomatal density; SL, stomatal length; SW, stomatal width; PCI, Potential conductance index; SA, Stomatal area; SRA, Stomatal relative area; t, top of glume; m, middle of glume; b, base of glume; \* and \*\* indicate significance at p-value <0.05 and p-value <0.01, respectively. The bottom left and top right of the table are the correlation coefficients of 2018 and 2019 respectively.