



Figure S1. Potato cultivars salt stress exposure for 4 weeks.

Table S1. Salinity tolerance coefficient of different indicators.

| Cultivar    | Time (h) | Salinity tolerant coefficient |                 |               |              |              |              |             |
|-------------|----------|-------------------------------|-----------------|---------------|--------------|--------------|--------------|-------------|
|             |          | Proline content               | Soluble protein | Soluble sugar | CAT activity | POD activity | SOD activity | MDA content |
| 'Longshu 5' | 0        | 1                             | 1               | 1             | 1            | 1            | 1            | 1           |
|             | 20       | 1.201                         | 1.411           | 1.170         | 0.890        | 0.919        | 1.434        | 1           |
|             | 24       | 0.888                         | 1.453           | 1.967         | 0.713        | 1.014        | 1.507        | 1.150       |
|             | 48       | 4.804                         | 1.322           | 1.192         | 0.822        | 1.288        | 1.201        | 1.087       |
|             | 72       | 9.464                         | 1.501           | 1.825         | 0.779        | 1.661        | 1.807        | 1.194       |
|             | 96       | 13.101                        | 1.295           | 1.854         | 0.891        | 1.441        | 1.672        | 1.415       |
|             | CV (%)   | 92.7                          | 12.3            | 25.8          | 10.8         | 21.9         | 18.9         | 12.4        |
| 'Qingshu 9' | 0        | 1                             | 1               | 1             | 1            | 1            | 1            | 1           |
|             | 20       | 1.429                         | 1.102           | 1.058         | 0.915        | 1.084        | 0.979        | 0.920       |
|             | 24       | 3.846                         | 1.818           | 2.008         | 0.713        | 1.232        | 1.360        | 1.055       |
|             | 48       | 6.497                         | 1.061           | 1.664         | 0.875        | 1.196        | 0.624        | 1.319       |
|             | 72       | 20.424                        | 0.959           | 1.751         | 0.763        | 1.164        | 0.768        | 0.960       |
|             | 96       | 26.545                        | 0.751           | 1.049         | 0.706        | 1.212        | 1.046        | 1.035       |
|             | CV (%)   | 99.3                          | 29.9            | 28.1          | 13.2         | 7.1          | 23.9         | 12.3        |

Note: CV refers to the coefficients of variation.

Table S2. Correlation matrix of seven indicators.

|                  | Zproline content | Zsoluble protein | Zsoluble sugar | ZCAT activity | ZPOD activity | ZSOD activity | ZMDA content |
|------------------|------------------|------------------|----------------|---------------|---------------|---------------|--------------|
| Zproline content | 1                |                  |                |               |               |               |              |
| Zsoluble protein | -0.463           | 1                |                |               |               |               |              |
| Zsoluble sugar   | 0.111            | 0.615*           | 1              |               |               |               |              |
| ZCAT activity    | -0.497*          | -0.327           | -0.588*        | 1             |               |               |              |
| ZPOD activity    | 0.407            | 0.271            | 0.481          | -0.343        | 1             |               |              |
| ZSOD activity    | -0.126           | 0.686**          | 0.411          | -0.255        | 0.476         | 1             |              |

|                     |       |       |       |        |        |       |   |
|---------------------|-------|-------|-------|--------|--------|-------|---|
| <b>ZMDA content</b> | 0.113 | 0.229 | 0.568 | -0.077 | 0.575* | 0.361 | 1 |
|---------------------|-------|-------|-------|--------|--------|-------|---|

Note: Z refers to the standardized data via Z score. \* and \*\* indicated a significant difference significant difference ( $p<0.05$ ) and extremely significant difference ( $p<0.01$ ), respectively.

**Table S3.** Characteristic vectors of normalization by principal component analysis.

|                         | <b>Component</b> |              |              |
|-------------------------|------------------|--------------|--------------|
|                         | <b>PCA 1</b>     | <b>PCA 2</b> | <b>PCA 3</b> |
| <b>Zproline</b>         | 0.095            | -0.728       | -0.049       |
| <b>Zsoluble protein</b> | 0.395            | 0.479        | -0.263       |
| <b>Zsoluble sugar</b>   | 0.483            | -0.006       | -0.131       |
| <b>ZCAT</b>             | -0.345           | 0.315        | 0.629        |
| <b>ZPOD</b>             | 0.421            | -0.245       | 0.337        |
| <b>ZSOD</b>             | 0.41             | 0.281        | 0.03         |
| <b>ZMDA</b>             | 0.369            | -0.055       | 0.633        |