**Table S1:** KEGG annotation distribution of the DEGs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| KEGG pathway | S-control 1  vs. S-AOS1 | S-control 3  *vs.* S-AOS 3 | R-control 1  *vs.* R-AOS 1 | R-control 3  *vs.* R-AOS 3 |
| Amino acid metabolism | 107 | 123 | 79 | 227 |
| Biosynthesis of other secondary metabolites | 167 | 108 | 159 | 324 |
| Carbohydrate metabolism | 166 | 256 | 134 | 425 |
| Energy metabolism | 85 | 116 | 41 | 214 |
| Glycan biosynthesis and metabolism | 21 | 13 | 10 | 27 |
| Lipid metabolism | 147 | 153 | 87 | 192 |
| Metabolism of cofactors and vitamins | 53 | 69 | 27 | 81 |
| Metabolism of other amino acids | 82 | 96 | 60 | 185 |
| Metabolism of terpenoids and polyketides | 44 | 45 | 48 | 107 |
| Nucleotide metabolism | 34 | 24 | 9 | 63 |
| Folding, sorting and degradation | 33 | 84 | 68 | 140 |
| Replication and repair | 62 | 20 | 13 | 117 |
| Transcription | 13 | 24 | 8 | 45 |
| Translation | 74 | 68 | 14 | 105 |
| Membrane transport | 7 | 11 | 6 | 21 |
| Signal transduction | 61 | 90 | 106 | 207 |
| Transport and catabolism | 45 | 70 | 32 | 133 |
| Environmental adaptation | 42 | 51 | 85 | 106 |
| Endocrine and metabolic disease | 6 | 0 | 3 | 1 |

Note:150 g L-1 PEG-6000 was used to simulate drought stress. S-control 1and S-control 3, wheat shoots of the control group under drought stress for 24 h (1 d) and 72 h (3 d) respectively; S-AOS 1 and S-AOS 3, wheat shoots of the AOS treatment group under drought stress for 24 h and 72 h respectively; R-control 1 and R-control 3, wheat roots of the control group under drought stress for 24 h and 72 h respectively; R-AOS 1 and R-AOS 3, wheat roots of the AOS group under drought stress for 24 h and 72 h respectively. AOS, alginate oligosaccharides; DEGs, differentially expressed genes; KEGG, kyoto encyclopedia of genes and genomes; PEG-6000, polyethylene glycol-6000.