

Table 4 Changes in gene expression levels and functional annotations of differential anthocyanin metabolic pathways

| Differential gene name               | Different flower development             |  |                          |                                 |                                      |                                     | Functional notes  |
|--------------------------------------|--|--|--------------------------|---------------------------------|--------------------------------------|-------------------------------------|---|
|                                      | Flower bud period vs Color change period | Color-changing period vs Purple-red type | Purple-red vs Pink-white | Flower bud period vs Pink-white | Flower bud period vs Purple-red type | Color-changing period vs Pink-white |   |
| Dihydroflavonol 4-reductase (DFR)    | Up                                       | Constant                                 | Constant                 | Up                              | Up                                   | Constant                            | Cellular components: cell membrane<br>Molecular function: dihydrokaempferol 4-reductase activity, coenzyme binding  |
| Chalcone synthase (CHS )             | Up                                       | Constant                                 | Down                     | Constant                        | Up                                   | Constant                            | Cellular components: nucleus, endoplasmic reticulum<br>Biological process: response to gravity<br>Cellular composition: plant-type vacuole membrane<br>Biological process: flavonoid biosynthesis process, auxin polar transport, response to UV-B<br>Molecular function: naringenin-chalcone synthase activity |
| Anthocyanin reductase (ANR)          | Up                                       | Constant                                 | Constant                 | Constant                        | Up                                   | Constant                            | Molecular function: catalytic activity, coenzyme binding  |
| Anthocyanin synthase (ANS)           | Up                                       | Up                                       | Constant                 | Up                              | Up                                   | Constant                            | Biological process: biosynthesis process of vacuolar tissue and proanthocyanidins<br>Molecular function: metal ion binding<br>Biological process: redox process   |
| Flavonoid-O-methyltransferase (FOMT) | Down                                     | Constant                                 | Constant                 | Down                            | Down                                 | Constant                            | Molecular function: O-methyltransferase activity<br>Biological process: methylation   |
| Agmatine coumarin acyltransferase    | Constant                                 | Down                                     | Up                       | Constant                        | Constant                             | Constant                            | unknown   |