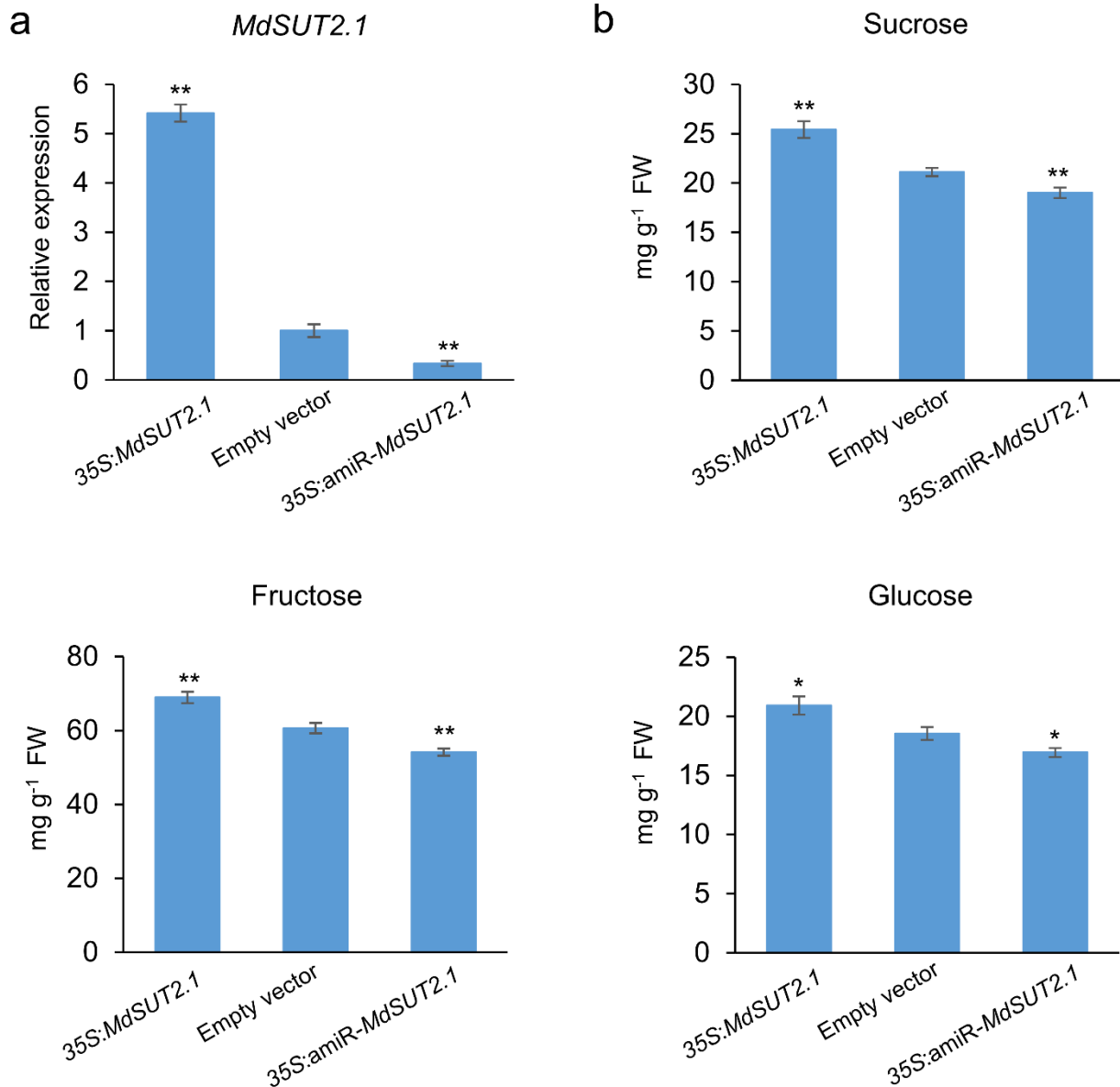


Appendix A. The primers used in the present work.

| Primer name | Sequence (5'-3') |
|------------------------|---|
| MdSUT2.1-cds-F | ATGGCGGGGAGGACGGACTC |
| MdSUT2.1-cds-R | TTACCCAAAATGAAAACCTG |
| MdSUT2.1-pCAMBIA2301-F | AGAACACGGGGGACGAGCTCATGGCGGGGAGGACGGACTC |
| MdSUT2.1-pCAMBIA2301-R | GCCCTTGCTCACCATAAGCTTCCCAAATGAAAACCTG |
| MdSUT2.1-qPCR-F | ACTCACTATGTATCAGCAGAAT |
| MdSUT2.1-qPCR-R | TGAGATGGCCTCCTTTAGATTCT |
| MdSUT2.1-pDR196-F | TCCCCCGGGCTGCAGGAATTCATGGCGGGGAGGACGGACTC |
| MdSUT2.1-pDR196-R | CTCGAGGGGGGGCCCGGTACCTTACCCAAAATGAAAACCTG |
| MdSUSY1-qPCR-F | CTCAAGCGTGTTAAGCAACAG |
| MdSUSY1-qPCR-R | CGAAGAATATCTGAATGCTCAGT |
| MdSUSY3-qPCR-F | TTATGGTTTCTGGAAGTATGTGTCTG |
| MdSUSY3-qPCR-R | CGTCGATGGCTTCAGGAACAGAT |
| MdSUSY4-qPCR-F | CGGCCAAGTCGAAAATATTGAACAC |
| MdSUSY4-qPCR-R | GTAGGTGTGATCAACTCATAACATT |
| MdvAINV1-qPCR-F | AGGTCAAGGCAGGCTCAGTGCT |
| MdvAINV1-qPCR-R | CCTAAAGCACCACGATGGGAAGC |
| MdvAINV2-qPCR-F | GATTTGAAGAAACGTTGGGCTTCC |
| MdvAINV2-qPCR-R | AGTTCCAATATCAAGTGGCACAAC |
| MdvAINV3-qPCR-F | GATTTGGAGAAGGGCTGGTCCTCG |
| MdvAINV3-qPCR-R | CGTTCCAATATCAAGTGGCACAGT |
| MdNINV7.1-qPCR-F | GACTCCTGCTTCTTCTACT |
| MdNINV7.1-qPCR-R | TCGTATGCAGCAATAGTGCCAC |
| MdNINV7.2-qPCR-F | ATGGCATTGAGATGTGCATTGGG |
| MdNINV7.2-qPCR-R | GAACTTATTTACAGCTGTGTGC |
| MdFRK1-qPCR-F | GGCCATCAGAAGATGCCGCACT |
| MdFRK1-qPCR-R | AACACCACCAACCCGCCCATGG |
| MdFRK2-qPCR-F | GTGGTGAATCCTTCGAGGTCAA |
| MdFRK2-qPCR-R | CAAATTTAGTACCTCCCTCAACCT |
| MdH XK1-qPCR-F | CCATTCACTAAGGACTCCTGAA |
| MdH XK1-qPCR-R | CGAGTGGCAACTATGTCGCAGAC |
| MdH XK2-qPCR-F | CTTCCGTGTCTGCGTGTACA |
| MdH XK2-qPCR-R | GTAAACCCTCTCCTTCAGTT |
| MdTST1-qPCR-F | TCGTCTATTTCTGCGTCTTTGTC |
| MdTST1-qPCR-R | CCGCTGCGTAAATCCCAA |
| MdTST2-qPCR-F | GGATTTGGAATCGGTTTGGTG |
| MdTST2-qPCR-R | GCATCAACCTCCAACCTGGCCGAA |
| amiRNA1-I miR-s | gaTATTTAGTTGGGGATCATCGAtctctcttttgattcc |
| amiRNA1-II miR-a | gaTCGATGATCCCCAACTAAATAtcaaagagaatcaatga |
| amiRNA1-III miR*s | gaTCAATGATCCCCATCTAAATTcacaggctgatgatg |
| amiRNA1-IV miR*a | gaAATTTAGATGGGGATCATTGAtctacatatattcct |
| amiRNA2-I miR-s | gaTGCTGATACATAGTGAGTGGAtctctcttttgattcc |

| | |
|---------------------------|---|
| amiRNA2-II miR-a | gaTCCACTCACTATGTATCAGCAAtcaaagagaatcaatga |
| amiRNA2-III miR*s | gaTCAACTCACTATGAATCAGCTtcacaggtcgtgatatg |
| amiRNA2-IV miR*a | gaAGCTGATTCATAGTGAGTTGAtctacatatatattcct |
| SISUSY1-qPCR-F | CAAGTACCGTAAGATGGCTGAA |
| SISUSY1-qPCR-R | TGAAACACTAAACAGAAGCCTCTAC |
| SISUSY3-qPCR-F | TTTAGAAATTGTTTGCCCCACAT |
| SISUSY3-qPCR-R | CTACAGAAGGGAAAAATGGCAAAT |
| SISUSY4-qPCR-F | AGTTCCGTGAGTTGGTAAAATCTGT |
| SISUSY4-qPCR-R | TGGTATGCTCCACGTTATTTATTCC |
| SlvAINV1-qPCR-F | TCCTTCCCTTTGCAAGACTTGT |
| SlvAINV1-qPCR-R | TCTCCCTCTTCCCTTTCTTGATG |
| SICINV4-qPCR-F | AGATGTGCCTTGTTTCTCCT |
| SICINV4-qPCR-R | CCGATGAAGTAACCACCAC |
| SICINV5-qPCR-F | TCTTGCTTCCCTTGCCA |
| SICINV5-qPCR-R | GGTGCTTCCCTTGCTTGTTTAC |
| SIHXX1-qPCR-F | TCTTGCTGCCTCTCATTCAATG |
| SIHXX1-qPCR-R | TTCCCTCTAGCAAGATATGGCTTT |
| SIHXX2-qPCR-F | TTCTTGGGAATGCCAACATATT |
| SIHXX2-qPCR-R | GGGAGAATTAGCAGTTTGCTGAGT |
| SIHXX3-qPCR-F | CTTGCTAAAGGGAACCCACTTCT |
| SIHXX3-qPCR-R | GCATGACACAGTGACACAAGGA |
| SIFRK1-qPCR-F | GTTGCAGCCAACGAGACATG |
| SIFRK1-qPCR-R | AAGGCTTTCCAGCATTTTCCTT |
| SIFRK2-qPCR-F | CGACGATGAGTTCGGTCACA |
| SIFRK2-qPCR-R | GGCGCCCTTGTCAAAATTAA |
| SIFRK3-qPCR-F | AGATGCGCTGTCAAAGCAACT |
| SIFRK3-qPCR-R | CACTTGGCAATGCTCTTCCTT |
| SITST1-qPCR-F | GGAAAAAGATCAGCTAAGCACG |
| SITST1-qPCR-R | GATCAGGACCTGGCTACTGAC |
| SITST2-qPCR-F | GCCATTGTCTGTGTCATTTCTTG |
| SITST2-qPCR-R | GTAGTAAATCGGACAGAAGATAACC |
| SlActin-qPCR-F | GTCCTCTTCCAGCCATCCA |
| SlActin-qPCR-R | ACCACTGAGCACAATGTTACCG |
| proMdSUT2.1-pCAMBIA0390-F | TGGGCCCGGCGCGCCAAGCTTGTTTCTCGTTTGTACATTTT |
| proMdSUT2.1-pCAMBIA0390-R | AACTAGTCAGATCTACCATGGGGCGACTCGGTTTCACTCAC |
| MdSUT2.1-RT-PCR-F | ACTCACTATGTATCAGCAGAAT |
| MdSUT2.1-RT-PCR-R | GCTGACACATTGGCTCAATTAGG |
| SlActin-RT-PCR-F | TGTCCCTATTTACGAGGGTTATGC |
| SlActin-RT-PCR-R | GAACCACCACTGAGCACAATGTTA |



Appendix B. Effect of altering *MdSUT2.1* expression on sugar (sucrose, fructose and glucose) contents in apple fruit. (a) Detection of the expression levels of *MdSUT2.1* in *MdSUT2.1* overexpressing and silencing fruit. (b) Sucrose, fructose and glucose contents in *MdSUT2.1* overexpressing and silencing fruit. The bars represent the mean value \pm SD (n = 3). * $p < 0.05$, ** $p < 0.01$ (Student *t*-test).