

Table 1 Suppl. Oligonucleotide primers for genes encoding enzymes in the anthocyanin biosynthetic pathway and a myeloblastosis transcription factor (F - forward, R - reverse). *Sm* - *Syzygium malaccense*, *PAL* – phenylalanine ammonia lyase; *CHS* – chalcone synthase; *CHI* – chalcone isomerase; *F3H* - flavanone-3-hydroxylase; *DFR* – dihydroxyflavonol-4-reductase; *LDOX* - leucoanthocyanidin dioxygenase; *UFGT* - UDP-glucose:flavonoid-3-O-glucosyltransferase; *MYB* - myeloblastosis; *ACT* – actin.

Gene name	Degenerated primer	Specific primer
<i>SmPAL</i>	F: 5'-GYDATYTTYGCWARGTBATG-3" R: 5'-AGATTNGAHGGYAABCCRTTGTG-3'	F: 5'-CACAAACTGAAGCATCATCCTGGC-3" R: 5'-GCTTCTGAAGTGGGTCCATCTCGT-3'
<i>SmCHS</i>	F: 5'-CAGCCCAAGTCCAAAATCAC-3' R: 5'-CAGCCCAARTCCAARATCAC-3'	F: 5'-GACCCCGTACCTGAAATCG-3" R: 5'-TTGGAGGTTGATGGTGAGC-3'
<i>SmCHI</i>	F: 5'-TMGTYWCVGGYCCBTTTGAG-3" R: 5'-CYTYGMTBCWGGVGAAAC-3'	F: 5'-GGCTCAATACGCAGAGAAGG-3" R: 5'-GGCGATTGCGTGAATAGG-3'
<i>SmF3H</i>	F: 5'-TKGCYTAYAAYSAMTTYAGC-3" R: 5'-GTTYTGGAAWGTNGCWATBG-3'	F: 5'-GCAATGGGATTGGAGAAGG-3" R: 5'-GCAAGAGGGTGATGGTTCC-3'
<i>SmDFR</i>	F: 5'-YTCWTGGCT SGT CATGAGRC-3" R: 5'-SCAGWDATGAGGCTYGGHG-3'	F: 5'-GCTCGCCAAGAAGATGACC-3" R: 5'-AACGAGACTTGGGATGATGC-3'
<i>SmLDOX</i>	F: 5'-ARAARGAGAAGTATGCHAAYGASC-3' R: 5'-CCAYGARATYCTMACCTTYTCC-3'	F: 5'-TTCTTCCACCTCGTTTACCC-3" R: 5'-GAGTGCCGATAGGATTTTGG-3'
<i>SmUFGT</i>	F: 5'-TSTTCWCNTTCTTCARCAC-3" R: 5'-GAGYYCCADCCRCATGYGWYAC-3'	F: 5'-AACACTGCCGATTCCATAGC-3" R: 5'-ATGTCCTCCTGTGGCTTCC-3'
<i>SmMYB</i>	F: 5'-GYATHRAYAARTAYGGIGARGGIAARTGG-3' R: 5'-GTRTTCCARTARTTYTTIACRTCRTTNGC-3'	F: 5'-GAAATGGCATCGAGTTCCCTC-3' R: Rev 5'-GACCACCTGTTCCCAAGAAG-3'
<i>SmACT</i>	F: 5'-CTGTTGCAACAAGATGGACGC-3" R: 5'-TTGACAGCAACATTCTTCACG-3'	F: 5'-TGCCATTGAGGCTGTCCTTTCC-3" R: 5'-CCCAGCCAGGTCAAGACGAAGA-3'

Table 2 Suppl. Specific primers of genes encoding enzymes in the anthocyanin biosynthetic pathway and a myeloblastosis (MYB) transcription factor (F - forward, R - reverse). For the names of enzymes - see Table 1 Suppl.

Gene name	Sequence	Expected size [bp]
<i>SmPAL</i> (GU233756)	F: CACAAACTGAAGCATCATCCTGGC R: GCTTCTGAAGTGGGTCCATCTCGT	121
<i>SmCHS</i> (GU233757)	F: GACCCCGTACCTGAAATCG R: TTGGAGGTTGATGGTGAGC	126
<i>SmCHI</i> (GU233758)	F: GGCTCAATACGCAGAGAAGG R: GGCGATTGCGTGAATAGG	159
<i>SmF3H</i> (GU233759)	F: GCAATGGGATTGGAGAAGG R: GCAAGAGGGTGATGGTTCC	148
<i>SmDFR</i> (GU233760)	F: GCTCGCCAAGAAGATGACC R: AACGAGACTTGGGATGATGC	121
<i>SmLDOX</i> (GU233761)	F: TTCTTCCACCTCGTTTACCC R: GAGTGCCGATAGGATTTTGG	135
<i>SmUFGT</i> (GU233762)	F: AACACTGCCGATTCCATAGC R: ATGTCCTCCTGTGGCTTCC	125
<i>SmMYB</i> (HM773023)	F: TGCCATTGAGGCTGTCCTTTCC R: GACCACCTGTTCCCAAGAAG	181

Table 3 Suppl. Chromatographic and spectroscopic characteristics of anthocyanins found in the red skin of wild-type Malay apple cv. Saraek using liquid chromatography - mass spectrometry.

Peak No.	Retention time [min]	Molecular ion	Aglycone ion	Anthocyanin
1	21.2	611	449,287	cyanidin-3,5-O-diglucoside
2	31.8	449	287	cyanidin-3- O-glucoside
3	37.8	433	271	pelargonidin-3- O-glucoside
4	39.2	463	301	peonidin-3- O-glucoside

Table 4 Suppl. Alignment of partial amino acid sequences of anthocyanin biosynthesis genes from *Syzygium malaccense* fruits with similar genes in fruits of other plants based on *BlastP* search, April 2019). For the names of enzymes - see Table 1 Suppl.

Gene name	Species	Identities [%]	Accession No.
<i>SmPAL</i>	<i>Vitis vinifera</i>	98	ANB59163
	<i>Pyrus pyrifolia</i>	97	AFF60415
	<i>Rubus idaeus</i>	97	AAG22550
	<i>Musa acuminata</i>	96	ABV26012
	<i>Lycium chinense</i>	94	AGK65595
<i>SmCHS</i>	<i>Lycium ruthenicum</i>	73	AHH55329
	<i>Mangifera indica</i>	72	AIB06736
	<i>Persea americana</i>	72	ACA65192
	<i>Prunus cerasifera</i>	72	AKV89241
	<i>Pyrus pyrifolia</i>	71	AFH58024
<i>SmCHI</i>	<i>Punica granatum</i>	80	ANB66204
	<i>Prunus cerasifera</i>	75	AKV89240
	<i>Morus notabilis</i>	74	AHY35310
	<i>Pyrus pyrifolia</i>	74	ADP09377
	<i>Solanum melongena</i>	71	ANN02871
<i>SmF3H</i>	<i>Rubus coreanus</i>	92	ABW74548
	<i>Fragaria ananassa</i>	91	AAU04792
	<i>Litchi chinensis</i>	91	ADO95201
	<i>Prunus cerasifera</i>	90	AKV89244
	<i>Pyrus communis</i>	89	AGL50918
<i>SmDFR</i>	<i>Vitis rotundifolia</i>	83	AGJ70142
	<i>Punica granatum</i>	82	AET74075
	<i>Mangifera indica</i>	81	AIY25001
	<i>Prunus cerasifera</i>	81	AKV89243
	<i>Fragaria vesca</i>	80	AHL46455
<i>SmLDOX</i>	<i>Mangifera indica</i>	91	AIB06742
	<i>Rubus idaeus</i>	91	AKV89246
	<i>Prunus cerasifera</i>	91	ABU88895
	<i>Garcinia mangostana</i>	90	ACM62747
	<i>Pyrus communis</i>	90	AGL50919
<i>SmUFGT</i>	<i>Vitis vinifera</i>	63	BAB41020
	<i>Litchi chinensis</i>	58	AED02461
	<i>Garcinia mangostana</i>	57	ACM62748
	<i>Fragaria ananassa</i>	56	AUU12366
	<i>Prunus cerasifera</i>	55	AKV89253
<i>SmMYB</i>	<i>Ribes rubrum</i>	89	AVI16683
	<i>Morella rubra</i>	88	ADG21957
	<i>Prunus cerasifera</i>	87	AKV89247
	<i>Vitis vinifera</i>	85	ACL97979
	<i>Solanum lycopersicum</i>	88	ACT36611

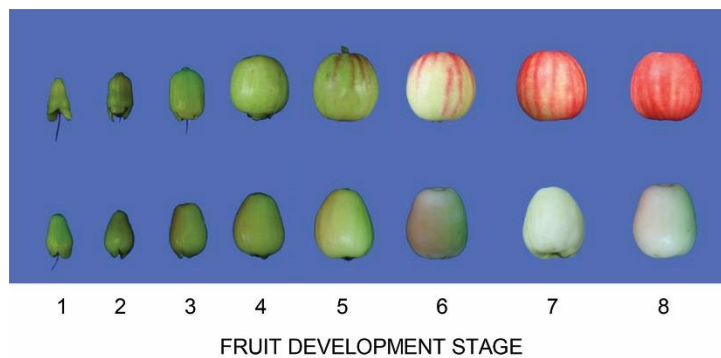


Fig. 1 Suppl. Stages of fruit development and colors of Malay apple (*Syzygium malaccense*) wild-type (upper) and mutant (lower) plants.

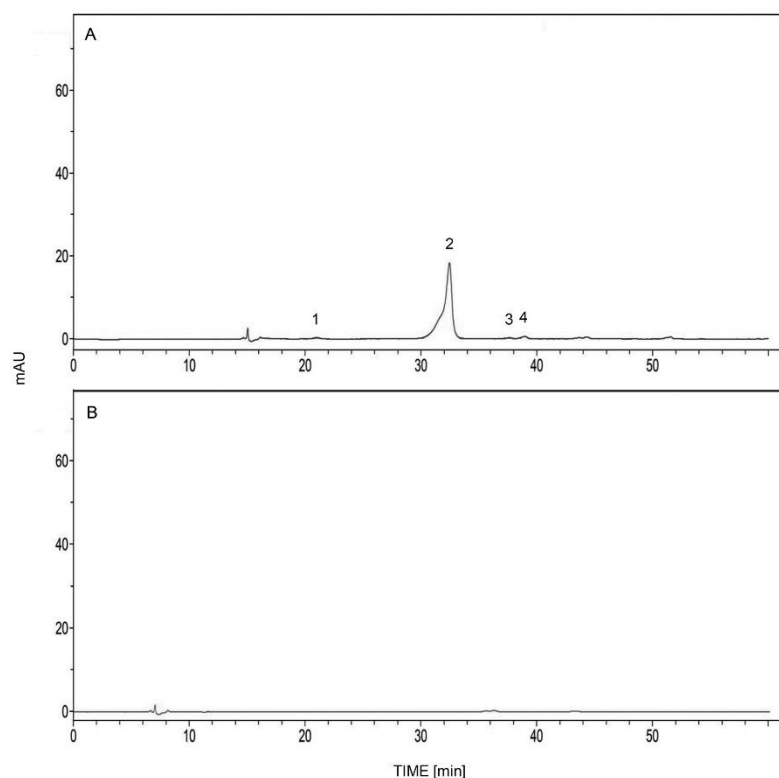


Fig. 2 Suppl. Anthocyanin profiles of the fruit skin of Malay apple (*Syzygium malaccense*) wild-type (A) and mutant (B) fruits at the fully ripe stage (developmental stage 8), using liquid chromatography - mass spectrometry. Peaks are cyanidin-3,5-*O*-diglucoside (1), peonidin-3,5-*O*-diglucoside (2), cyanidin-3-*O*-glucoside (3), and pelargonidin-3-*O*-glucoside (4).

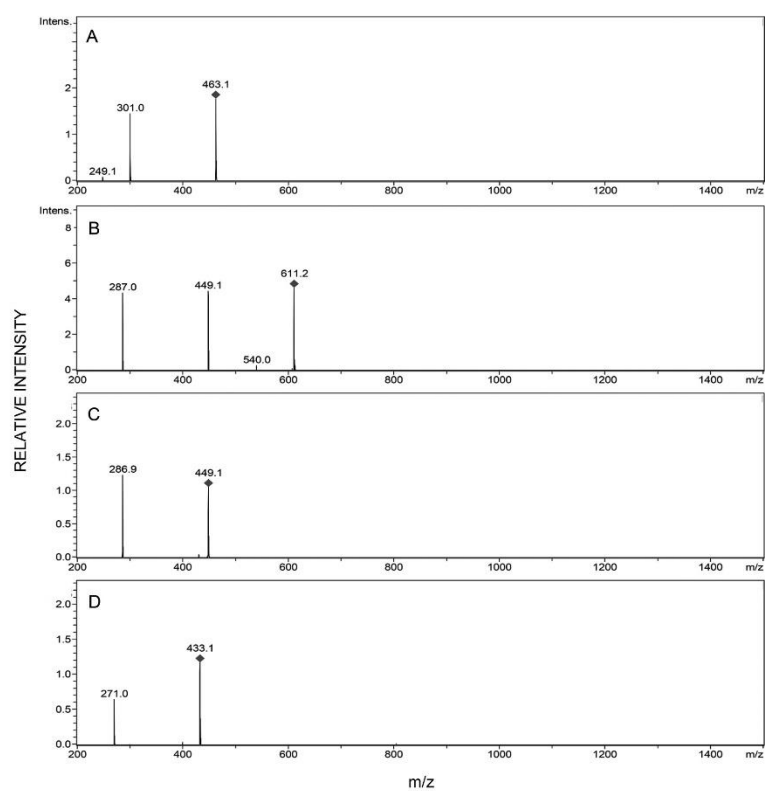


Fig. 3 Suppl. Chromatographic profiles of anthocyanins of the fruit skin of Malay apple by liquid chromatography - mass spectrometry/mass spectrometry at the fully ripe stage (developmental stage 8). Chromatographic profiles are cyanidin-3,5-*O*-diglucoside (A), peonidin-3,5-*O*-diglucoside (B), cyanidin-3-*O*-glucoside (C), and pelargonidin-3-*O*-glucoside (D).