

Table S3 Novel miRNAs were identified from the MF and CMS lines in cabbage.

miRNA name	miR-seq	LM	LP	MFE (kcal/Mol)	MF	CMS
bol-miR0001-3p	ACGTTGGCTCGAGAGATGGGA	21	75	-35.6	1	2
bol-miR0002-3p	AGGAATATCAGATGGCATGAAATC	24	94	-18.2	5	0
bol-miR0003-5p	ATTAGAGACTCGGAGAAGCCCTGT	24	78	-24.1	9	3
bol-miR0004-5p	TTTAGTCGAATATAAGAAACA	21	91	-19.8	2	1
bol-miR0005-3p	GAAGCTTATGGGACATGCTT	20	82	-21.8	0	3
bol-miR0006-3p	AGCTCAAACGTCTTAGAACT	20	83	-20	4	0
bol-miR0007-5p	TTGGACTCAACGGATCTCCCC	21	73	-21	3	1
bol-miR0008-3p	AACAAAGAATTGCAGAGTTTGATC	24	91	-19.5	2	4
bol-miR0009-3p	AGACTAATGAGATTGTGTTT	20	83	-19.1	1	2
bol-miR0010-3p	ATTCATGGATATATAGACCGAGGT	24	101	-23.8	2	2
bol-miR0011-5p	CCGCAAGAGAATCCATCGCAGG	22	75	-21.7	0	5
bol-miR0012-3p	ATATCTATATGAGAGTTCCTGA	22	94	-21.9	5	3
bol-miR0013-5p	ATATAAGTATGTGGTAAACCTCAA	24	87	-27.9	2	3

bol-miR0014-3p	TTGTTGTGGCTTTGACTTGTT	21	98	-30.8	0	35
bol-miR0015-5p	GAGCTTGAGAATGTTATGTTC	21	80	-22	3	7
bol-miR0016-3p	TTCATGAGATTCTTCACGGTT	21	91	-18.4	7	3
bol-miR0017-5p	CAAAGAACTGTTGAGAATGAA	21	94	-19.2	3	1
bol-miR0018-5p	GATTTGGATTGGCTTCAAGGC	21	93	-21.02	2	1
bol-miR0019-3p	TTGGACTGAAGGGGATTCCAA	21	98	-23.8	8	3
bol-miR0020-3p	AGACTGTTTTGGAGAAGTTGGAAG	24	97	-20.4	2	4
bol-miR0021-3p	GGAAATTCGTCGGAAAGTTCCAA	23	100	-21.6	5	4
bol-miR0022-5p	AACAGAGGATTTGATATATGCACC	24	93	-18.6	3	1
bol-miR0023-3p	GCAAGTTGACTTTGGCTCTGT	21	98	-36	52	155
bol-miR0024-3p	TTGCGTGAGATGATTGATGCT	21	79	-18.2	2	6
bol-miR0025-3p	AGGCTGGTTTAGTATCAATTAAAC	24	99	-38.5	1	3
bol-miR0026-5p	TTGATCTTCATCTTGAATGTC	21	91	-26.3	24	14
bol-miR0027-5p	TTTGGACTTGACGGCACTGTA	21	93	-26.1	2	1

bol-miR0028-3p	TTCAGGACCGATGGATTCTCC	21	84	-18.9	3	2
bol-miR0029-5p	TTGGCTGAGAGCTACTTAATC	21	92	-19.44	0	4
bol-miR0030-3p	CGGCGAGTTTTCTTCTGCTGA	21	90	-23.65	35	24
bol-miR0031-3p	TGTGGTGTAAGTTTTATCGA	21	82	-24.5	1	2
bol-miR0032-3p	ATAGAATTTTCAGTTTTCAAACC	22	91	-22.9	2	3
bol-miR0033-5p	ATTGTTTTGGTTTGACTCGGT	21	80	-22	2	2
bol-miR0034-5p	CTTTAATCTTTATTTACTTGT	21	90	-20.7	4	1
bol-miR0035-5p	CCTAGGAGGACAAATCAATATT	22	83	-19.9	1	4
bol-miR0036-3p	GATAAAGTGAAATTTCTCGAC	21	98	-18.1	1	2
bol-miR0037-5p	TTACTGATGAAGATTTTGAAG	21	93	-22.7	6	3
bol-miR0038-3p	TGTTGAGGAATCTCTGAATTCT	22	95	-19.25	0	4
bol-miR0039-5p	ATGGTCAAGAAACACTGAGTC	21	89	-23.4	2	3
bol-miR0040-5p	GAAGAGGTAGAGTTGTTGCCA	21	88	-31.43	2	1
bol-miR0041-3p	AGGTACTCCATGGAGTCTTAAGA	23	74	-26.1	3	4

bol-miR0042-3p	ATGCGTTTCAACTAAAGAAAGGCA	24	101	-28.4	3	0
bol-miR0043-3p	GTAACCGAGTCGGTTTGATGT	21	78	-25.7	3	0
bol-miR0044-5p	TATACAAATGTAGACATGGCA	21	95	-18.6	7	0
bol-miR0045-3p	ATTGATTTATCGGTTTGACGA	21	69	-22.9	2	2
bol-miR0046-3p	TTTCTCTTCTTTTTGCACTCTC	22	99	-32.4	5	3
bol-miR0047-5p	AGATTTGGTCAAAGATGACGC	21	76	-20.1	3	1
bol-miR0048-5p	TCTTTGTGGAGAGAAAGAGAGA	22	77	-18.9	1	2
bol-miR0049-3p	GATGAAATGCCTGAGAGAAGTCT	23	82	-18.6	9	10
bol-miR0050-5p	AATTGAGATTGATATTTTTAAAGA	24	101	-19.84	1	2
bol-miR0051-3p	TTGGAGCATCTGGAGTTGTTAG	22	86	-21.1	0	1
bol-miR0051-5p	ATTTCTTTCTAGGCTGTGGTT	21	86	-21.1	5	10
bol-miR0052-3p	TCTTGATACAAGAATCTGACC	21	75	-18.7	0	5
bol-miR0053-5p	CTTTAAAATCTAGTGTTATTGAAA	24	80	-20.1	7	1
bol-miR0054-3p	GAGAATTATGGAGAAGAAGACGA	23	100	-26.8	1	3

bol-miR0055-3p	TGTTTTGCGAGTTTTTATTGA	21	98	-20.2	3	2
bol-miR0056-5p	TATGTTTTGGATTGCTATGG	21	73	-18.4	4	2
bol-miR0057-3p	CTTGGAAGCTCTGACGGAGA	21	71	-22.1	21	8
bol-miR0058-3p	TTGGCAATTCTTTTACAAGCC	21	89	-18	3	0
bol-miR0059-5p	ATAAACGACGTCGTTTTATCTCG	24	75	-28.9	4	1
bol-miR0060-5p	TGGTTTCATATACACCTCTTC	21	76	-24.5	1	5
bol-miR0061-3p	TTTGGATGGTAAAAAGTGAGA	21	83	-19.4	3	1
bol-miR0062-5p	TGAGAACTGAGAAGTTACCTGA	22	88	-20.9	1	2
bol-miR0063-3p	GGGTATTATCCGAACCGAACC	21	98	-30.1	2	2
bol-miR0064-3p	TTGGTGTCTTGCTCATAGTA	20	93	-20.1	3	1
bol-miR0065-5p	TCATAGAGCTTGATGAATAGGTA	23	82	-19.2	2	1
bol-miR0066-5p	TTAGAATCCGCCTGAGTCAAG	21	74	-18.1	12	10
bol-miR0067-5p	ATGTTGGAATTGTAGTGGACT	21	79	-19.2	2	3
bol-miR0068-3p	CGGAGGAAACAGCAACGGAGGA	22	85	-21.2	4	1

bol-miR0069-3p	CTGAAGTCGCTGCCTATGGCGT	22	80	-18.8	0	4
bol-miR0070-3p	GCGTATGAGGAGCCATGCATA	21	101	-47.8	0	1
bol-miR0070-5p	TGCCTGGCTCCCTGTATGCCATATG	25	101	-47.8	15	11
bol-miR0071-3p	TTTAAGGATGCGTTGGATATG	21	76	-18	3	1
bol-miR0072-5p	ATCTCCATTGTTTTGAGACCG	21	85	-21.9	2	1
bol-miR0073-3p	AATAACAAGAGAGAACTCTGAAGC	24	101	-18.2	3	1
bol-miR0074-3p	TTTGAGTGAATCTTACTGGCT	21	78	-22.5	2	1
bol-miR0075-5p	ATTGCATTGGATGTAGCTCGA	21	92	-36.3	2	4
bol-miR0076-5p	TTCCGGTAAAAACCTCACCA	20	76	-22	4	3
bol-miR0077-5p	CTATGGTATTGATGACTCAGT	21	83	-18.7	3	3
bol-miR0078-3p	AGAGATGACTTGAGACATGTAAGT	24	89	-27.59	9	14
bol-miR0079-5p	ATCTGGATGATACATTTGAATGAG	24	92	-29.8	9	8
bol-miR0080-5p	TCTTTGGGGAATTTGAAGCCA	21	94	-21.1	2	1
bol-miR0081-5p	GTTGGATTGAATTGGGCTCCA	21	89	-21.9	6	2

bol-miR0082-3p	TTGATTTCTCGGTTGGAGATT	21	97	-19.9	2	2
bol-miR0083-3p	ATGGAGATCTTATGTGGATATGCT	24	97	-19.2	5	4
bol-miR0084-5p	AAAGGGAGAGATTGATATCTTGGC	24	93	-24.3	20	10
bol-miR0085-3p	TTTCGTCTTCAAGCTATGGAGC	22	96	-23.8	17	12
bol-miR0086-5p	GATCGAATCCACAAAGAATTAGA	23	94	-23.9	3	0
bol-miR0087-5p	TTTGTGGCTAAGTTTCGATTT	21	93	-22.1	55	58
bol-miR0088-3p	AATGTAGAATCCTTAGCAGA	20	83	-21.8	2	1
bol-miR0089-5p	TAGGGTTGAGTTCTTGACGGA	21	84	-26.1	1	14
bol-miR0090-3p	TGATTTGGAAGTGGGATAGGT	21	77	-18.3	2	2
bol-miR0091-3p	CAGTCGCACCAATTGATGGAT	21	91	-19.83	2	3
bol-miR0092-5p	GAATAGCCATGTGCTCTGCA	20	68	-26.8	2	4
bol-miR0093-3p	TGTTGTGTTGGTTTTGACCCG	21	84	-22.1	8	3
bol-miR0094-5p	ATATAAACCGAACTAAACCGAAGT	24	76	-31.1	1	2
bol-miR0095-3p	ACATGGCTGTTGTTTTACCA	20	96	-23.5	1	2

bol-miR0096-5p	TGGCCAGAGGATTCACACAAG	21	63	-19.6	7	7
bol-miR0097-3p	GTGCGATGCTAGTGACTATGCT	22	99	-27.3	2	7
bol-miR0097-5p	TCTGGTGAGTGCTCCCATTGTGCA	24	99	-27.3	0	1
bol-miR0098-3p	CGAGTGAACCTTGAGCGACAAG	21	80	-24.7	2	6
bol-miR0099-5p	TGACGAGCTTGAGGACGACCT	21	80	-23.9	5	2
bol-miR0100-5p	AGAAAAAATCGAGAACTTCA	21	77	-18.5	6	2
bol-miR0101-3p	CTTGACTAGGACGGTCTGAGGCTT	24	101	-21.8	9	13
bol-miR0101-5p	AGCCAGTGATGATTAGATTCAA	22	101	-21.8	1	7
bol-miR0102-3p	ACTTTGTATTTGTAGAGACGA	21	79	-23.3	4	3
bol-miR0103-3p	TTTGGATCGAATGGAGCTCCA	21	96	-21.41	16	6
bol-miR0104-3p	ACTTTTACTTGTTGAAATGACTCT	24	81	-18.5	2	1
bol-miR0105-5p	AGTTCTGATGAAATTCCGGC	20	94	-21	2	1
bol-miR0106-3p	GATCCAACACTTGGTAGCAACTGA	24	101	-25.2	0	4
bol-miR0107-3p	ATTGGATTGATTCTTTGCCGA	21	75	-21.9	4	2

bol-miR0108-3p	GAGACTCAAACATTTCAAGT	20	97	-19.8	3	2
bol-miR0109-3p	TTCCCAAATGTAGACAAAGCAAT	23	90	-35.3	652	673
bol-miR0110-3p	TCAGAGAGACGATGACTTTGC	21	77	-20.1	3	3
bol-miR0111-5p	AAATTGGGCTTGAATTTGCCT	21	70	-18.8	1	2
bol-miR0112-5p	ATGGCTGGGAACTCTTTACAAACT	24	81	-21.5	2	1
bol-miR0113-3p	CAAAGGTTTATGAAGAGTTTTA	22	87	-22.4	2	5
bol-miR0114-3p	TTTTTGATAGGAAAACGGTAA	21	92	-25.5	3	0
bol-miR0115-3p	ATTTGGATAAAGATTCTGCCA	21	93	-20.6	3	3
bol-miR0116-5p	CTTGGTAATCGCCGGTAACCGC	22	79	-26	4	0
bol-miR0117-5p	AATATTTTTGAAAACTTTTTTGGC	24	96	-21.6	8	4
bol-miR0118-3p	CGGGAATTCAGGAAAAATTCT	21	75	-20.6	1	2
bol-miR0119-5p	AAATTCAAACCTTGATCTAGA	21	97	-18.8	4	0
bol-miR0120-3p	TAGGTCAATTAGTTGCAACTGG	22	72	-38.3	0	3
bol-miR0121-3p	CTGGAATGGTTTGAGCAGCTT	21	97	-19	0	3
bol-miR0122-5p	TTTGGCGGGTGATAGAGCAGACA	23	99	-30.4	4	3
bol-miR0123-3p	ATATGTAGAAATCTCTATTTTTGA	24	88	-20.7	13	4
bol-miR0124-3p	GTTCAAATTTCTTCAAAGTCT	21	85	-21.2	4	1

bol- miR0125- 3p	AAGGATCATGTTGTAATAACAAAT	24	94	-18	3	0
bol- miR0126- 5p	TGTTTTTTGGGTTTAACTGA	21	81	-21.7	3	4
bol- miR0127- 3p	TGAAGTTTCTCGATTTTTTCT	21	77	-18.5	7	11
bol- miR0128- 5p	AATTTATCTCTGATGGACCGGATC	24	97	-24.2	4	2
bol- miR0129- 3p	AGGAATTGCTGAGTTTGTCTT	21	79	-20.4	3	5
bol- miR0130- 3p	AATCTGTATTCAGTTGGTACA	21	98	-21.2	3	1
bol- miR0131- 5p	ATATGTGTTACGACGAACGAGCAA	24	92	-19.82	3	8
bol- miR0132- 5p	GACTCGAGACCAGAGAGCTGCC	22	89	-26	3	1
bol- miR0133- 3p	AGAGAGCTGTTGATTGAGCCG	21	72	-20.9	51	34
bol- miR0134- 3p	TTTTTCGGATTTTCGGATT	19	67	-19.2	3	4
bol- miR0134- 5p	TTCGGATATCCGTTTAGGTTC	21	67	-19.2	0	1
bol- miR0135- 3p	TCATCGGAATTTGGTCGGAAATT	23	76	-27.8	7	5
bol- miR0135- 5p	TTCCGACGACATTTCCGACAAA	22	76	-27.8	0	2
bol- miR0136- 3p	ATATTCCGACGGATTTCTGACGAC	24	76	-18.9	8	8

bol-miR0137-3p	AAGTAGTTGTAAAAACCTTGT	21	97	-21.2	1	2
bol-miR0138-3p	TGTTCTCTGGGTTTTGATCGG	21	85	-20.3	21	15
bol-miR0139-3p	AGAAGTTTAGAACTCGTTCGGGTA	24	84	-25.5	2	1
bol-miR0140-5p	CTATGTCGTTTCCTATTTAGT	21	83	-21.9	5	13
bol-miR0141-3p	GAGATCTCTTGTTTCGGACA	20	78	-18.2	1	4
bol-miR0142-3p	CCTTCTCATCGATGGTCTAGA	21	98	-24.8	527	168
bol-miR0143-3p	ATTTATGGTAGATTCTATAGTATA	24	101	-20.8	2	2
bol-miR0144-3p	TGCTCACCTCTCTTTCTGTCAGT	23	99	-51.5	1	4
bol-miR0144-5p	CAGAAGAGAGTGAGCACATGC	21	99	-51.5	63	68
bol-miR0145-5p	TATATTATTGTTAGATTCACAA	22	95	-18.4	7	7
bol-miR0146-5p	GGATGAGGAAGAAGAGATCATC	22	83	-18.2	1	2
bol-miR0147-3p	GGTGATGAGAAGCTGAGTTGA	21	89	-25.5	1	3
bol-miR0148-5p	ATGAACTCGAAATCAGAAGCG	21	92	-20	5	3
bol-miR0149-3p	AGAGAAGCGAACGAGGAAGCG	21	70	-18.8	1	2

bol-miR0150-5p	AACTAATGTAGATAGTCTAACAGG	24	82	-20.24	2	2
bol-miR0151-3p	TGATCCATCTGAATGCATAGA	21	98	-22.5	2	1
bol-miR0152-3p	AAGCCTCGGAATGGGAGGCCT	21	89	-23.7	2	1
bol-miR0153-3p	ATTCATTTGGGATAACATGTAAAA	24	101	-19.53	3	6
bol-miR0154-5p	ATGAATGATCATAGAAATATATA	23	88	-18.6	15	11
bol-miR0155-3p	GTGGAGTATGACTGAAAACCA	21	85	-18.6	4	0
bol-miR0156-3p	ATATATAAGTTGTATGAAGA	20	95	-18.4	3	2
bol-miR0157-3p	CGGCTCTGATACCAATTGATG	21	82	-42.7	2	3
bol-miR0158-5p	GTTTGTGAATTTGGATAAAACA	22	77	-20.5	0	5
bol-miR0159-3p	ACTTGCTTTCTCTACTGACCTAGA	24	100	-20	1	3
bol-miR0160-5p	TCTCCAGATGAAGACAAACGA	21	87	-22.3	1	2
bol-miR0161-5p	GTTTCATTAGGCTTTATCCA	20	77	-21.4	5	2
bol-miR0162-5p	ATACGTCTAGTGGAGAACCCGAAC	24	72	-23.1	0	3
bol-miR0163-5p	CGTTGTGTGGCTTTTACCGA	20	87	-25.8	3	0

bol-miR0164-3p	TTTGGATTGGAGGAGGCGCAA	21	85	-18.2	8	11
bol-miR0165-3p	TGTCCAAAAGCAGCCAAAGCA	21	88	-28.2	17	10
bol-miR0166-3p	TTTGAGCTTGGAGGCTACTGC	21	97	-21.3	4	0
bol-miR0167-5p	TGAGAACAATCATTGTATGA	20	95	-25.9	3	3
bol-miR0168-3p	ATTGGATGTTGTTAGTTTCGATT	24	91	-21.7	1	2
bol-miR0169-3p	AACCAGAAGTTCTTTGAGACATTC	24	96	-20.8	4	8
bol-miR0170-5p	ACCTGATCCGAAATACCCGAACCC	24	80	-19.9	2	1
bol-miR0171-5p	ACCCTAATTTCTTTTGTAATCAAA	24	83	-22.7	3	1
bol-miR0172-3p	AAATAGATGCTGTTTTTAGTTCA	23	97	-18	0	3
bol-miR0173-3p	TTGGACTGACGATTTTGGCCAAA	24	93	-23.2	1	2
bol-miR0174-3p	TGGTTTGTGCATTTTAACCGA	21	97	-20.8	2	1
bol-miR0175-3p	ATTCTATTCGTCTGGTGTGTT	21	91	-35.2	0	3
bol-miR0176-3p	ACGGATTTAGACCTGAGTGGTAAC	24	97	-34.8	1	5
bol-miR0177-5p	GTTTGTCTGAACAAGGTCAGCA	21	70	-20.2	3	1

bol- miR0178- 3p	AGAGAATAGGAAATCTATGCAACA	24	99	-22	0	8
bol- miR0179- 3p	TTAGAACAAAGTTTTATACTGA	22	99	-20	5	1
bol- miR0180- 5p	TGTTTTGTGGGATTTAAAGTA	21	98	-26.2	3	0
bol- miR0181- 3p	ATAGACTGTGTTACATATCG	21	72	-21.8	3	1
bol- miR0182- 5p	AGTAAAAACAACAGAGAATAAAGA	24	99	-26.7	3	0
bol- miR0183- 5p	GATGAAATGCCTGAACGAAATCTT	24	90	-22.5	5	9
bol- miR0184- 5p	TTTGTTTTCAATCTGTAGTCC	21	73	-19.6	0	3
bol- miR0185- 3p	ATACGTTGTAGTATTGTAAGTGTT	24	99	-22	8	11
bol- miR0186- 3p	ATAAGATAATAGCAACACTTGAGA	24	97	-21	6	9
bol- miR0187- 3p	TTTGGATTGGAGGTTTCTCTT	21	82	-22.1	2	3
bol- miR0188- 5p	TCCGGATATCCGATTTTTCGGAGC	24	75	-33.3	5	3
bol- miR0189- 3p	ATTCGGTCAAATGCAAATCTT	21	98	-26.71	15	29
bol- miR0190- 3p	TGGAAGATGCAAAGTGTGAGTG	22	81	-22	2	1
bol- miR0191- 3p	GTAAAAATACAGAACTCAAATC	24	90	-18.6	9	3

bol-miR0192-5p	ACAGGTGGTGGAAACAAATATGAGT	24	99	-47.8	3	0
bol-miR0193-5p	TGTTGTGCGGGTTCTTGCCGG	21	98	-35.9	7	8
bol-miR0194-5p	ATCCATTTTAAAACTCTTGTA	21	89	-21.4	3	0
bol-miR0195-5p	CTTGCAAGGATAGTAGAAGGT	21	88	-22.5	25	25
bol-miR0196-5p	TGATGTCATCTGGAATCTTCTC	22	86	-22.1	2	2
bol-miR0197-3p	ATTTAGGGTTTAGGGTTTTGATGA	24	93	-20.1	2	1
bol-miR0198-3p	GAGGATAAAATTATAAGAATT	21	82	-19.3	11	9
bol-miR0199-3p	AAGATGATGGGTTTGATCCAATGA	24	86	-19.6	2	4
bol-miR0200-3p	AGAAGCGTTATGGAAGTGAGATTC	24	101	-23.6	3	0
bol-miR0201-5p	GCGAGGGTGATGTTTCAACGT	21	93	-25.7	4	6
bol-miR0202-3p	GCCGAATTGGAACGCAAAATC	21	87	-18.11	15	16
bol-miR0203-5p	CATATTGATTTAGTCTAATCAAC	23	100	-19.8	3	1
bol-miR0204-5p	AACCGGGTTCATGAATTATGGTCA	24	95	-18.42	7	5

miR_seq, miRNA sequence; LM, length of mature miRNA; LP, length of precursor miRNA; MFE, minimum folding free energy