

Table S4. Temperature-dependent gene expression profiles of *NyMBF1* in three life cycle generations of *Neopyropia yezoensis* normalized using reference genes

Generation	Reference gene	Temperature	Duration (h)							
			0	0.5	1	2	4	6	8	12
G	<i>GAPDH</i>	5°C	1 ± 0 ^a	1.32 ± 0.07 ^a	1.85 ± 0.09 ^a	2.09 ± 0.04 ^a	1.49 ± 0.04 ^a	3.71 ± 0.13 ^a	6.3 ± 0.97 ^{ab}	20.2 ± 2.55 ^c
		15°C	1 ± 0 ^a	0.76 ± 0.08 ^a	1.11 ± 0.13 ^a	1.71 ± 0.16 ^a	10.92 ± 1.37 ^b	24.75 ± 1.75 ^{cd}	136.98 ± 2.85 ^f	21.38 ± 1.88 ^{cd}
		25°C	1 ± 0 ^a	1.11 ± 0.12 ^a	2.56 ± 0.1 ^a	4.87 ± 0.11 ^{ab}	26.35 ± 2.06 ^d	41.86 ± 3.01 ^e	143.54 ± 6.27 ^g	20.05 ± 2.07 ^c
	<i>EF1α</i>	5°C	1 ± 0 ^a	2.75 ± 0.08 ^g	3.95 ± 0.18 ^j	2.33 ± 0.17 ^{ef}	1.28 ± 0.22 ^{ab}	2.03 ± 0.19 ^{cde}	1.18 ± 0.17 ^a	1.12 ± 0.13 ^a
		15°C	1 ± 0 ^a	1.32 ± 0.09 ^{ab}	2.26 ± 0.17 ^{def}	1.67 ± 0.2 ^{bc}	1.65 ± 0.2 ^{bc}	1.77 ± 0.19 ^c	1.87 ± 0.18 ^{cd}	1.06 ± 0.16 ^a
		25°C	1 ± 0 ^a	1.74 ± 0.15 ^c	2.5 ± 0.14 ^{fg}	3.54 ± 0.12 ^{ij}	6.27 ± 0.22 ^l	3.22 ± 0.23 ⁱ	4.7 ± 0.41 ^k	1.07 ± 0.06 ^a
	<i>eIF4A</i>	5°C	1 ± 0 ^a	1.9 ± 0.59 ^a	1.57 ± 0.12 ^{ab}	1.64 ± 0.12 ^{ab}	1.85 ± 0.18 ^{ab}	1.4 ± 0.25 ^a	1.65 ± 0.26 ^a	3.44 ± 0.1 ^{ab}
		15°C	1 ± 0 ^a	2.2 ± 0.18 ^{ab}	1.92 ± 0.14 ^b	2.89 ± 0.15 ^{ab}	3.15 ± 0.1 ^{ab}	3.2 ± 0.15 ^{ab}	3.71 ± 0.27 ^{ab}	3.26 ± 0.22 ^{ab}
		25°C	1 ± 0 ^a	2.61 ± 0.37 ^{ab}	6.15 ± 0.14 ^{bc}	43.27 ± 3.58 ^f	19.07 ± 1.6 ^e	10.94 ± 1.7 ^d	55.72 ± 5.15 ^g	10.4 ± 1 ^{cd}
S	<i>GAPDH</i>	5°C	1 ± 0 ^a	1.05 ± 0.27 ^a	1.07 ± 0.15 ^a	1.15 ± 0.13 ^a	1.51 ± 0.16 ^a	2.55 ± 0.25 ^{ab}	5.23 ± 0.79 ^{cd}	9.44 ± 1.18 ^{ef}
		15°C	1 ± 0 ^a	0.97 ± 0.09 ^a	1.23 ± 0.15 ^a	1.47 ± 0.23 ^{ab}	3.25 ± 0.34 ^{abc}	7.57 ± 0.34 ^{de}	7.18 ± 0.86 ^{de}	2.43 ± 0.15 ^{ab}
		25°C	1 ± 0 ^a	2.15 ± 0.2 ^{ab}	4.48 ± 0.42 ^{bc}	8.03 ± 0.31 ^e	10.88 ± 0.66 ^f	18.68 ± 2.05 ^g	17.74 ± 1.84 ^g	7.71 ± 1.09 ^e
	<i>EF1α</i>	5°C	1 ± 0 ^a	1.54 ± 0.22 ^a	2.99 ± 0.28 ^{ab}	3.31 ± 0.27 ^{ab}	3.12 ± 0.23 ^{ab}	1.34 ± 0.2 ^a	1.41 ± 0.15 ^a	1.05 ± 0.18 ^a
		15°C	1 ± 0 ^a	1.01 ± 0.23 ^a	7.48 ± 0.51 ^{de}	5.66 ± 0.49 ^{bcd}	3.59 ± 0.49 ^{abc}	2.39 ± 0.22 ^a	1.32 ± 0.07 ^a	1.15 ± 0.17 ^a
		25°C	1 ± 0 ^a	2.89 ± 0.36 ^{ab}	32.13 ± 4.36 ^g	12.52 ± 0.47 ^f	10.19 ± 1.09 ^{ef}	6.6 ± 0.43 ^{cd}	2.45 ± 0.37 ^{ab}	1.43 ± 0.22 ^a
	<i>eIF4A</i>	5°C	1 ± 0 ^a	0.84 ± 0.08 ^a	0.96 ± 0.08 ^a	0.93 ± 0.09 ^a	1 ± 0.04 ^a	0.8 ± 0.15 ^a	0.98 ± 0.24 ^a	2.41 ± 0.2 ^a
		15°C	1 ± 0 ^a	1.08 ± 0.03 ^a	1.61 ± 0.37 ^a	1.92 ± 0.32 ^a	2.15 ± 0.2 ^a	2.62 ± 0.15 ^a	2.23 ± 0.18 ^a	2.34 ± 0.17 ^a
		25°C	1 ± 0 ^a	3.24 ± 0.35 ^a	10.28 ± 1.21 ^{bc}	33.57 ± 2.84 ^e	13.28 ± 1.99 ^{cd}	13.86 ± 1.51 ^d	32.86 ± 2.29 ^e	8.21 ± 0.26 ^b
CS	<i>GAPDH</i>	5°C	1 ± 0 ^{ab}	0.86 ± 0.07 ^a	1.76 ± 0.2 ^{ab}	1.74 ± 0.07 ^{ab}	3.54 ± 0.11 ^{abc}	3.52 ± 0.45 ^{abc}	11.61 ± 0.58 ^d	4.93 ± 0.32 ^{bc}
		15°C	1 ± 0 ^{ab}	1.52 ± 0.15 ^{ab}	1.38 ± 0.28 ^{ab}	1.79 ± 0.1 ^{ab}	2.79 ± 0.16 ^{abc}	3.03 ± 0.08 ^{abc}	6.48 ± 0.13 ^c	4.13 ± 0.12 ^{abc}
		25°C	1 ± 0 ^{ab}	1.85 ± 0.15 ^{ab}	2.4 ± 0.27 ^{ab}	3.14 ± 0.16 ^{abc}	6.61 ± 0.65 ^c	12.51 ± 2.23 ^d	41.25 ± 2.69 ^e	69.79 ± 4.62 ^f
	<i>EF1α</i>	5°C	1 ± 0 ^a	4.69 ± 0.3 ^{ef}	7.71 ± 0.77 ^g	2.36 ± 0.31 ^{bcd}	10.47 ± 1.53 ^h	5.07 ± 0.47 ^f	3.25 ± 0.23 ^{cdef}	1.16 ± 0.14 ^{ab}
		15°C	1 ± 0 ^a	1.53 ± 0.18 ^{ab}	1.67 ± 0.15 ^{abc}	3.7 ± 0.41 ^{def}	4.18 ± 0.44 ^{def}	3.97 ± 0.26 ^{def}	4.24 ± 0.73 ^{def}	1.79 ± 0.3 ^{abc}
		25°C	1 ± 0 ^a	2.45 ± 0.5 ^{abcd}	13.21 ± 1.84 ⁱ	9.54 ± 0.87 ^{gh}	7.77 ± 0.73 ^g	4.62 ± 0.46 ^{ef}	3.77 ± 0.17 ^{def}	2.8 ± 0.19 ^{bcd}
	<i>eIF4A</i>	5°C	1 ± 0 ^a	1.06 ± 0.18 ^a	1.69 ± 0.15 ^{ab}	0.73 ± 0.03 ^a	0.84 ± 0.11 ^a	1.21 ± 0.19 ^a	1.48 ± 0.16 ^{ab}	1.22 ± 0.11 ^a
		15°C	1 ± 0 ^a	0.86 ± 0.13 ^a	0.77 ± 0.09 ^a	0.87 ± 0.11 ^a	1.18 ± 0.13 ^a	1.34 ± 0.13 ^a	1.34 ± 0.11 ^a	1.48 ± 0.03 ^{ab}
		25°C	1 ± 0 ^a	1.27 ± 0.05 ^a	2.55 ± 0.09 ^{bc}	7.63 ± 1.12 ^f	4.06 ± 0.29 ^{de}	4.2 ± 0.34 ^e	10.99 ± 0.85 ^g	3 ± 0.75 ^{cd}

Mean values ± SD were calculated from triplicate experiments, and letters denote statistically significant differences ($p < 0.05$) determined by two-way ANOVA. G, gametophyte; S, sporophyte; CS, conchosporephyte.