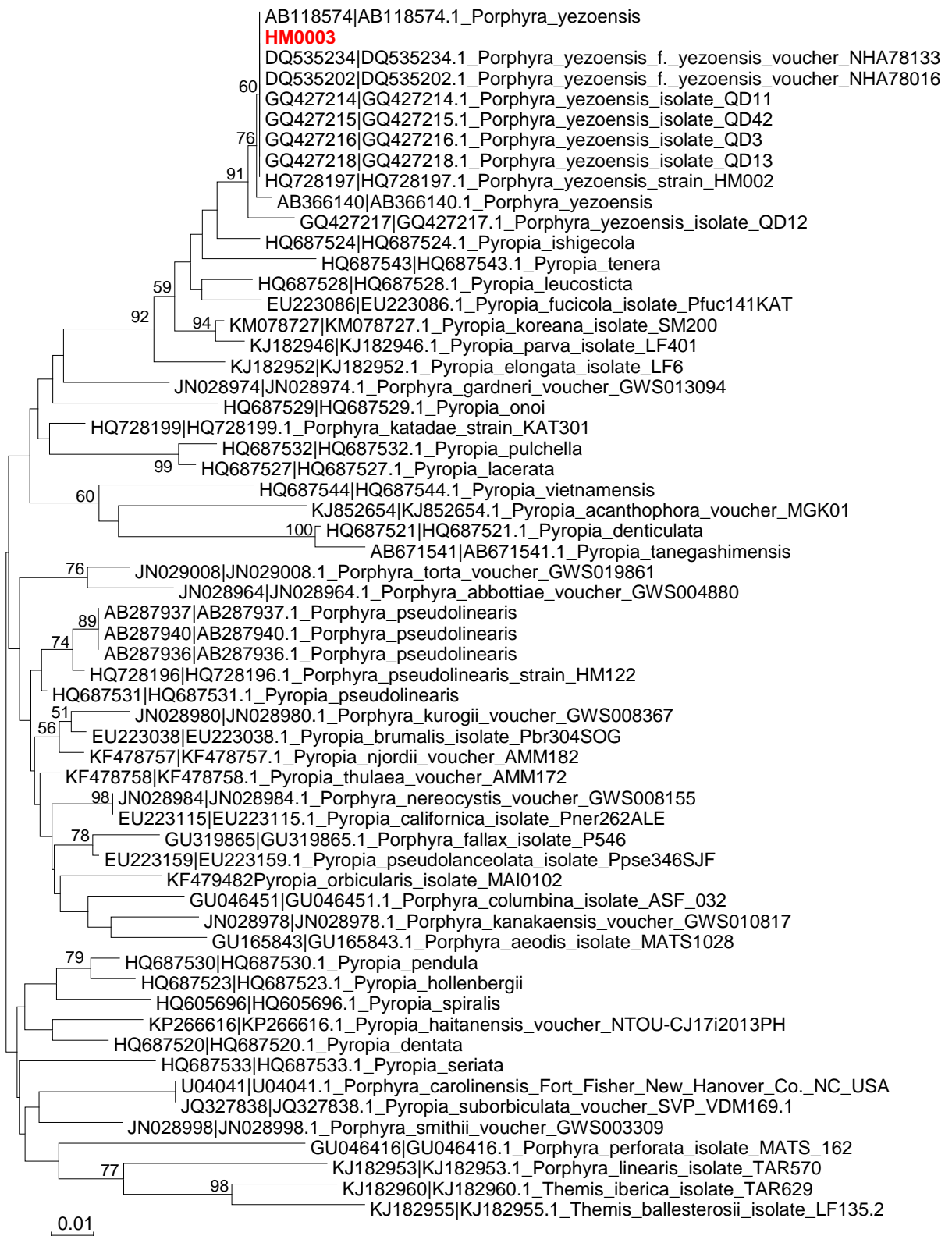
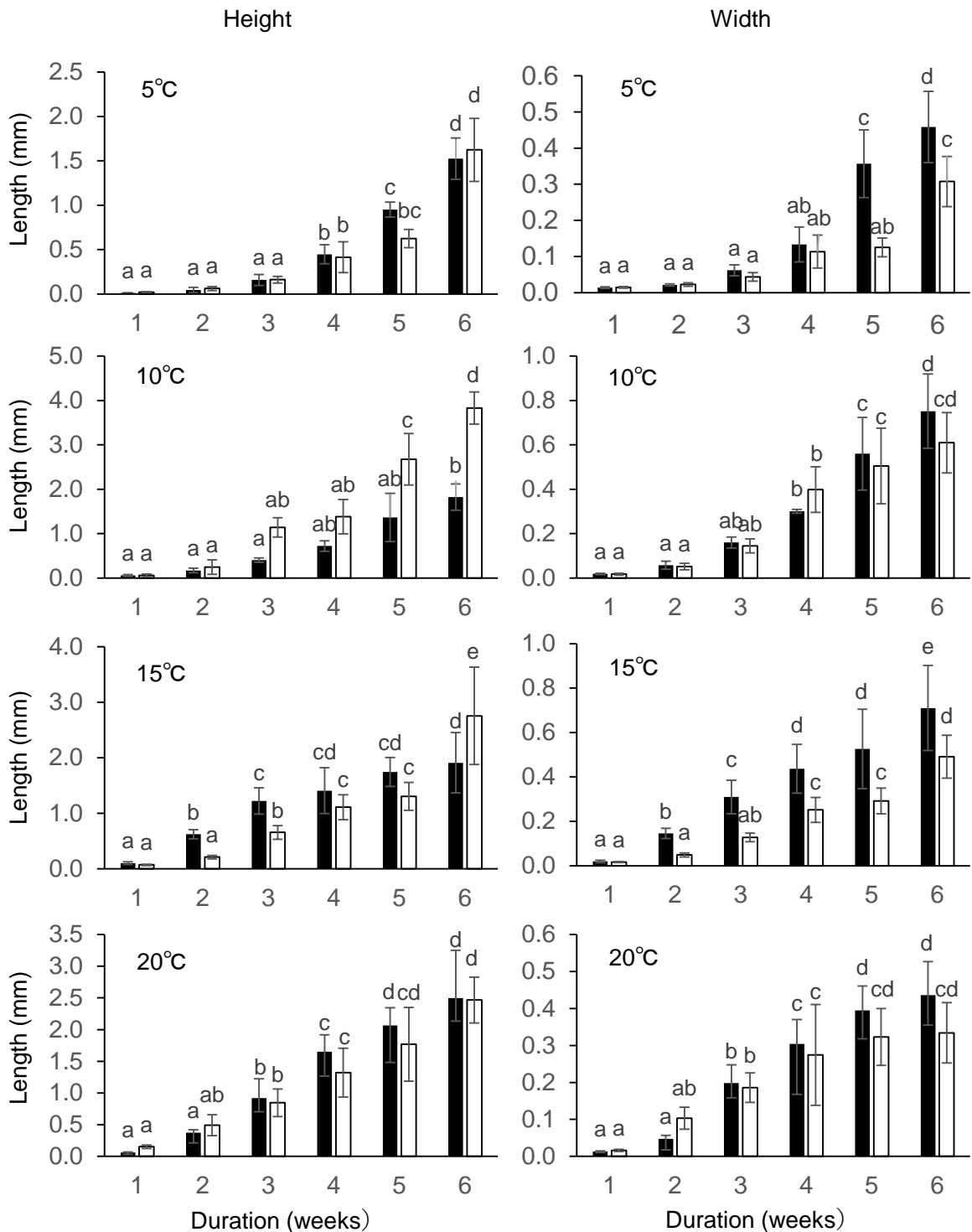


**Supplementary Fig. 1.** Location of Hakodate and photographic representation of the sampling sites. (A) Location of Hakodate in Hokkaido. (B) Sampling site in Irifune fishing port ( $41^{\circ} 46'N$ ,  $140^{\circ} 42'E$ ) on April 2, 2018, when the type specimen shown in Fig. 2A was collected. (C) Thallus of the Irifune specimen on shellfish. (D) Morphological variations in the Irifune specimen harvested on April 27, 2018.



**Supplementary Fig. 2.** Phylogenetic analysis of the Irifune specimen. Neighbor-joining phylogenetic tree reconstructed using sequences of *rbcl* genes from the Irifune type specimen (HM0003) and representatives of various species of the genus *Pyropia*. DDBJ/EMBL/GenBank accession numbers are given in front of the corresponding scientific species name. The *rbcl* gene sequence of the Irifune specimen HM00003 is identical to those representing *P. yezoensis* in the same clade. Bootstrap values (over 50%) from 1000 replicates are indicated at tree nodes. Bar: 0.01 substitutions per site.



**Supplementary Fig. 3.** Effects of temperature on growth of *Pyropia yezoensis* var. *irifuneiensis* thalli. Growth of monospores from *P. yezoensis* var. *irifuneiensis* and *P. yezoensis* f. *narawaensis* U51 was compared in culture at 5, 10, 15, and 20°C for 1 to 6 weeks. Height (left) and width (right) of thalli were measured every week for *P. yezoensis* var. *irifuneiensis* (black bars) and *P. yezoensis* f. *narawaensis* U51 (white bars). Error bars indicate standard deviation of triplicate experiments ( $n = 3$ ), and different letters denote significant differences as defined by the Tukey's test ( $p < 0.05$ ) in one-way ANOVA.