

Reviewer Report

Title: Chromosome-level genome assembly of the hard-shelled mussel *Mytilus coruscus*, a widely distributed species from the temperate areas of East Asia

Version: Revision 1 **Date: 1/30/2021**

Reviewer name: Nathan Kenny

Reviewer Comments to Author:

The response by Yang et al has mostly addressed my concerns. However, I have a few remaining points to address, which should be corrected before acceptance.

1) the main text tables have not been provided, and I am unable to assess their contents. I do not need to see these again provided the editor can confirm their veracity.

in answer to my major point 1) regarding N content as I cannot see if this information is provided in the table, please ensure that it is noted either in the main text or in the table legend that gaps are preset at 100Ns, and may be longer or shorter. It may be useful to give a "total number of gaps" figure in this table.

2) for Figure 5 it is still confusing why *M. coruscus* is not compared to all the other genomes, rather than doing these comparisons with another species (which has been studied previously). Would you like to show more *M. coruscus* results?

3) in Fig 6b, please indicate in the figure legend whether these results are the averages of your 3 replicate samples, or individual samples

Minor comments: The manuscript would still benefit from another round of proof reading. I have noted some problems below.

Abstract:

-Linkage misspelled, "14 lineage groups"

-carried is the wrong word, and the past tense is incorrect here: "carried 91.9% of core metazoan orthologs." Perhaps "possesses 91.9% of the core metazoan ortholog set"

- "the sister taxon" not "a sister taxon" (also in methods section)

Introduction:

- "due to their high economic" not "due to the high"

- "understanding of the larvae-juvenile" not "understanding of larvae-juvenile"

- "widespread among metazoans" not "widespread among metazoan "

- "Most studies" not "Most of studies"

- "hard-shelled mussel genetic breeding" not "the hard-shelled mussel genetic breeding" (no the)

- I suggest "molluscs" rather than "mollusks" in the last paragraph, to match your usage elsewhere

Methods:

- no "a"s in "at a 57Å— coverage and the heterozygous peak was at a 28Å—" - this should read "at 57Å— coverage and the heterozygous peak was at 28Å—"

- "usually occurs in fragmented assemblies" not "usually occurs in fragmented assembly",

- "align to one or more of the InterPro " not "have the alignment to one or more of the InterPro"

- "Chromosome-level genomes allow re-sequencing and population genetic studies." not "Chromosome-level genome is important for re-sequencing and population genetic."

- "preliminary assay" not "preliminary try "

- "Benchmark Universal Single-Copy Orthologs (BUSCO) v4.1.4" not "Benchmark Universal Single-Copy Orthologs BUSCO v4.1.4"

Abbreviations"

no "the", TPM: Transcripts per Million;

Figure 3 legend (and possibly elsewhere) please italicise the k in kmer

Figure 4 legend: gene names need italics

Fig 5 legend: "corresponding evolutionary relationship" not "corresponding evolution relationship"

-some bold font needed, Additional Files title page (pg 25)

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