Reviewer Report

Title: A chromosomal-level genome assembly for the giant African snail Achatina fulica

Version: Revision 1 **Date:** 5/31/2019

Reviewer name: Takeshi Takeuchi, Ph.D

Reviewer Comments to Author:

I would like to ask the authors for further explanation regarding RNA quality check. For publication, molecular dating should also be re-analized using standard calibration method based on fossil records.
In the revised manuscript, information about transcriptome was added according to reviewers' suggestions. The authors described that "The RNA quality was checked using ... the 2100 Bioanalyzer (...) with RNA integrity number of 8." (lines 107-109). In general, molluscan total RNA does not show such a high RIN value because 28s rRNA peak is very low. Integrity of molluscan total RNA can be evaluated by checking a sharp peak of 18s rRNA around 1800-2000nt, while RIN is typically 3.0-6.0. Is it possible to show Bioanalyzer summary report?
In addition, still I seriously concern about molecular dating in Fig.5. Unfortunately, I could not find the figure the authors downloaded from the TIMETREE (www.timetree.org). Thus, in order to retrieve Timetree, I searched term "Protostomia" in the website. According to the data (please see attached file "pairwise_divergence_times.xlsx"), divergent time of Insecta and Gastropoda is 753 MA, which is more or less similar to the value in Fig 5 (811.54 MA). Next, I downloaded the "Timetable", which is a list of literatures ("TimeTree The Timescale of Life.xlsx") referred by the TIMETREE. In the Timetable, however, 8 literatures out of 11 show the divergent time of insects/molluscs is 543-670 MA that is consistent with widely accepted dating (about 600 MA). Since calibration date considerably affects the result, researchers should access not only summary database but also original literatures cited by the database.
Another issue of the molecular dating is that calibration using estimated value may cause overestimation or underestimation. The authors should use fossil record data for calibration. For examples, data referred in the following studies should provide reliable fossil information. These studies also show the divergent time of insects/molluscs is 600-650 MA.
Erwin, D. H. et al. The Cambrian conundrum: early divergence and later ecological success in the early history of animals. Science 334, 1091-1097 (2011).
Simakov, O. et al. Hemichordate genomes and deuterostome origins. Nature 527, 459-465 (2015).

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