The Shrimp Genome: Opportunities for Sustainable Shrimp Industry

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ABSTRACT:

Sustainability of the shrimp farming industry has been hindered in part by the lack of high-quality genome sequence. Here, we report the first chromosome-level whole-genome assembly of the black tiger shrimp *(Penaeus monodon)* using the combination of long-read Pacific Biosciences (PacBio) and long-range Chicago and Hi-C technologies. The final assembly covered 2.39 Gb and contained 44 pseudomolecules, corresponding to the haploid chromosome number. Repetitive elements occupied 62.5% of the assembly, which is highest reported among crustacean species. Our high-quality genome assembly provides an invaluable resource for accelerating the development of improved shrimp strain in breeding programs and future studies on gene regulations and comparative genomics to ensure sustainability of the shrimp industry.

KEYWORDS:

Black tiger shrimp; *Penaeus monodon*; reference genome; Hi-C; PacBio