多様な形質に基づくイワスナギンチャク Palythoa 属（刺胞動物門：花虫綱：スナギンチャク目）近縁種間における種の境界

（様式第５－２号）課程博士

令和２年８月11日

琉球大学大学院
理工学研究科長　殿

論文審査委員
主査　氏　名　傳田 哲郎　印
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学位（博士）論文審査及び最終試験の終了報告書

学位（博士）の申請に対し，学位論文の審査及び最終試験を終了したので，下記のとおり報告します。

記

申　請　者	専攻名　海洋環境学　氏名　水山　克　学籍番号 [redacted]	
指　導　教　員　名	傳田 哲郎	
成　績　評　価	学位論文　合格　不合格	最終試験　合格　不合格
論　文　題　目	Integrative delimitation of species boundaries in closely related *Palythoa* species (Cnidaria: Anthozoa: Zoantharia) (多様な形質に基づくイワスナギンチャク *Palythoa* 属（刺胞動物門：花虫綱：スナギンチャク目）近縁種間における種の境界)	

審査要旨（２０００字以内）

Speciation of marine benthic organisms on coral reefs is not yet well studied or understood. Given that coral reef ecosystems are often not large, and that many species have external fertilization and planktonic larvae, it would seem that the presence of barriers that can cause speciation are few. Despite this, coral reef biodiversity is very high. Studies on closely related species from coral reefs can help us to understand how these species are generated under such conditions.

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審査要旨

In his thesis, the candidate examined species boundaries in four closely related putative morphological species of the zooxanthellate zoantharian genus *Palythoa*, found on the same coral reefs in southern Japan. The candidate collected morphological, ecological, reproductive, and genetic data, and combined his analyses to consider the delineation of *Palythoa* species. His results showed many new findings, including a clear demonstration of reproductive isolation in three of the putative species, and clear morphological and ecological (symbiont type, isotopic niche) differences. Despite this, genetic data did not clearly delineate between the different putative species. In summary, these four groups likely represent four or more species, and further data are needed to discern exactly how many species are contained within this group in southern Japan.

These results are of academic importance as our understanding of speciation in benthic marine species has been greatly advanced by his work. The candidate's work can therefore be judged as being of a high academic level.

The candidate's publication history related to this thesis meets graduation requirements, with two first author peer-reviewed papers, both in international journals. The candidate gave a final thesis presentation (=final examination) on August 11, 2020, via Zoom online, from 9:50 a.m. to 10:50 a.m. in front of all three members of the Committee. This presentation was open to the public, and attended by many people from both inside and outside the university. In his presentation he discussed his major results. Overall, the candidate talked for approximately 40 minutes, and then appropriately answered general and specific questions related to his thesis and research field for 20 minutes. The Committee then met on August 11, 2020, again via Zoom online, from 3:10 p.m. to 3:45 p.m., and discussed and judged the candidate's thesis, and his final presentation and answers to questions, as meeting graduation requirements. Thus, based on the above results, for these reasons, the Committee unanimously recommended "Pass" for the candidate.