

**A taxonomic revision of the sponge-associated genus  
*Thoracactis* Gravier, 1918 (Anthozoa: Zoantharia) based on an  
integrated approach**

*Hiroki Kise* | ORCID: 0000-0002-4099-6469

Environmental Management Research Institute, National Institute of Advanced  
Industrial Science and Technology, AIST, 16-1 Onogawa, Tsukuba, Ibaraki 305-  
8569, Japan

Molecular Invertebrate Systematics and Ecology Laboratory, Graduate School  
of Engineering and Science, University of the Ryukyus, 1 Senbaru, Nishihara,  
Okinawa 903-0213, Japan

*h.kise@aist.go.jp*

*Javier Montenegro* | ORCID: 0000-0002-0289-3274

Minderoo-UWA Deep-Sea Research Centre, School of Biological Sciences and  
Oceans Institute, The University of Western Australia, 35 Stirling Highway,  
Perth, WA 6009, Australia

Molecular Invertebrate Systematics and Ecology Laboratory, Graduate School  
of Engineering and Science, University of the Ryukyus, 1 Senbaru, Nishihara,  
Okinawa 903-0213, Japan

*Paulo V.F. Corrêa* | ORCID: 0000-0001-6474-7355

Department of Biological Oceanography, Oceanographic Institute – University  
of São Paulo, Praça do Oceanográfico 191, CEP 05508-120, São Paulo, SP,  
Brazil

*Marcos V.C. Clemente*

Department of Biological Oceanography, Oceanographic Institute – University  
of São Paulo, Praça do Oceanográfico 191, CEP 05508-120, São Paulo, SP,  
Brazil

*Paulo Y.G. Sumida* | ORCID: 0000-0001-7549-4541

Department of Biological Oceanography, Oceanographic Institute – University  
of São Paulo, Praça do Oceanográfico 191, CEP 05508-120, São Paulo, SP,  
Brazil

*Bert W. Hoeksema* | ORCID: 0000-0001-8259-3783

Marine Evolution and Ecology Group, Naturalis Biodiversity Center, PO Box  
9517, 2300 RA Leiden, The Netherlands

Groningen Institute for Evolutionary Life Sciences, University of Groningen,  
P.O. Box 11103, 9700 CC Groningen, The Netherlands

*James D. Reimer* | ORCID: 0000-0003-0453-8804

Molecular Invertebrate Systematics and Ecology Laboratory, Graduate School  
of Engineering and Science, University of the Ryukyus, 1 Senbaru, Nishihara,  
Okinawa 903-0213, Japan

Tropical Biosphere Research Center, University of the Ryukyus, 1 Senbaru,  
Nishihara, Okinawa 903-0213, Japan

### **Supplementary material**

FIGURE S1      Bayesian inference tree based on combined dataset of COI, 16S-rDNA  
and ITS-rDNA. Number at nodes represent Bayesian posterior  
probabilities (>0.95).

FIGURE S2      Maximum likelihood tree based on COI dataset. Number at nodes represent ML bootstrap values (>50% are shown).

FIGURE S3      Maximum likelihood tree based on 16S-rDNA dataset. Number at nodes represent ML bootstrap values (>50% are shown).

FIGURE S4      Maximum likelihood tree based on ITS-rDNA dataset. Number at nodes represent ML bootstrap values (>50% are shown).