

## CONFERENCES

### The 16<sup>th</sup> International Echinoderm Conference – Nagoya, Japan 2018

#### Oral presentations on holothurians

##### **Echinoderm diversity and distribution along the Pacific coast of Costa Rica**

Alvarado J.J.\*, Mena-González S., and Guzmán-Mora A.G. (\*juan.alvarado@ucr.ac.cr)

##### **Characterization of tensilin-like proteins from the body wall and Cuvierian tubules of the sea cucumber *Holothuria forskali***

Bonneel M.\*, Hennebert E., Wattiez, R. and Flammang P. (\*marie.bonneel@umons.ac.be)

##### **How different sterols contribute to saponin tolerant plasma membranes in sea cucumbers**

Claereboudt E.\*, Eeckhaut I., Lins L. and Deleu M. (\*emily.claereboudt@doct.uliege)

##### **An attempt to conserve the highly depleted *Holothuria fuscogilva* in the northwest coast of Sri Lanka**

Dissanayake D.C.T.\* (\*chamid4@gmail.com; chamari@sjp.ac.lk)

##### **A high risk small-scale marine fishery in the coastal livelihoods of northern Sri Lanka**

Dodangodage P.K.\* (\*dodangodage5@gmail.com)

##### ***Holothuria mammata*: a new emergent species for sea cucumber aquaculture in north-eastern Atlantic and Mediterranean Sea**

Domínguez-godino J.A.\*, Cruz J.M.G., and González-Wangüemert M. (\*jorge.adg86@gmail.com)

##### **Problems with estimating survival in echinoderm populations**

Ebert T.\*, Hernández J. and Clemente S. (\*ebertt@science.oregonstate.edu)

##### **A field guide to coastal echinoderms of the Kerguelen Islands**

Feral J.-P.\*, Poulin E., De Ridder C. and Saucedo T. (\*jean-pierre.feral@imbe.fr)

##### **Frizzled genes expression patterns during regeneration of internal organs in *Eupentacta fraudatrix***

Girich A.S.\* and Dolmatov I.Y. (\*astromoon@mail.ru)

##### **Molecular tools to assess the stocks of *Holothuria arguinensis* and implications for its management**

González-Wangüemert M.\*, Diaz-suárez A., Domínguez-Godino J.A. and Cánovas F. (\*mwanguemert@ualg.pt)

##### **Influence of vibration caused by sound on migration of sea cucumber *Apostichopus japonicus***

Lin C.\*, Yang H., Zhang L., Sun L. and Zhang T. (\*linchenggang@qdio.ac.cn)

##### **Indications of conspecific passive interference in *Stichopus horrens***

Juinio-Meñez M.A.\*, Gorospe J.C., Soy R.C., Rioja R. and Lambio K.A.F. (\*ajmenez@msi.upd.edu.ph)

##### **Cryptic genetic diversity in *Stichopus cf. horrens*: Reproductive isolation revealed by microsatellite and SNP markers**

Kim K.M.\*, Lizano A.M.D. and Ravago-Gotanco R. (\*kimkennethm@gmail.com)

##### **Limited genetic connectivity of *Stichopus cf. horrens* across the western Philippines revealed by microsatellite markers**

Lizano A.M.D.\*, Juinio-Meñez, M.A. and Ravago-Gotanco R. (\*marcopolo132004@gmail.com)

**Taxonomic status of some Algerian shallow-water sea cucumber species (Holothuroidea: Echinodermata) deduced from morphology and mitochondrial DNA sequences**

Mezali K.\* and Mansouri T. (\* karimmezali14@gmail.com)

**Reproductive biology and early development of the Dendrochrotid ball sea cucumber, *Phyllophorus proteus*, in western Visayas, central Philippines**

Nievales MFJ.\*, Genisan A., Dejuan F., Madarcos N.R. and Madas C. (\* mjnievales1@up.edu.ph)

**The high road and the low road: multiple processes lead to latitudinal diversity gradients across the seafloor**

O'Hara T.D.\* and Hugall A.F. (\* tohara@museum.vic.gov.au)

**Taxonomic revision of genus *Pannychia* (Holothuroidea, Elasipodida, Laetmogonidae) from Japanese waters**

Ogawa A.\* and Fujita T. (\* a-ogawa@kahaku.go.jp)

**Transcriptomic resources for *Holothuria scabra*: identification of growth-related genes H and ancestry-informative SNP marker development**

Ordoñez J.F.F.\*, Galindez G.S.T. and Ravago-Gotanco R. (\* junefordonez@gmail.com)

**Recent advances in understanding higher-level sea cucumber relationships and classification**

Reich M.\* and Paulay G. (\* mike.reich@lmu.de)

**Evaluating the direct and indirect effects of light on *Stichopus cf. horrens*' behavior, growth and survival**

Rioja R.A.\*, Palomar-Abesamis N. and Juino-Meñez M.A. (\* riojangel@gmail.com)

**Stock enhancement of the sea cucumber *Apostichopus japonicus* by release of the post-settled juveniles in Hokkaido, Japan**

Sakai Y., Honke K., Mori N., Michibayashi N., Sato N. and Kanno M. (\* sakai-yuichi@hro.or.jp)

**Effects of food abundance on the diel burying behavior, growth, and survival of juvenile *Holothuria scabra***

Sinsona M.J.\* and Juinio-Meñez A.J.M. (\* msinsona@msi.upd.edu.ph)

**The sea cucumber genome provides insights into morphological evolution and visceral regeneration**

Sun L.\*, Yang H., Zhang L., Lin C. and Zhang T. (\* sunlina@qdio.ac.cn)

**Re-establishment of the anteroposterior axis in regenerating intestines of a sea cucumber *Apostichopus japonicus***

Takatani K., Nakano H. and Kondo M.\* (\* konmari@mmbs.s.u-tokyo.ac.jp)

**Softenin, novel protein which softens the dermis isolated from a sea cucumber *Stichopus chloronotus***

Tamori M.\*, Takehana Y., Yamada A. and Motokawa T. (\* mtamori@bio.titech.ac.jp)

**The southern African Holothuroid fauna: a synopsis**

Thandar A.S.\* (\* thandara@ukzn.ac.za)

**A systematic revision on sea cucumbers of the family Stichopodidae using two molecular markers**

Woo S.P. \*, Kajihara H., Byrne M., Tan S.H., Zulfigar Y., Yeemin T., Suttacheep M. and Fujita, T. (\* abe\_woo@hotmail.com)

**Biological characteristics and aquaculture of sea cucumber *Apostichopus japonicus***

Yang H., Zhang T., Zhang L., Sun L. and Lin C. (\* hshyang@qdio.ac.cn)

**Locomotion and feeding behavior of sea cucumber *Apostichopus japonicus***

Zhang L.\*, Pan Y., Sun J., Ru X., Zhang T. and Yang H. (\* zhanglibin@qdio.ac.cn)

**Application of non-invasive imaging techniques in echinoderm research: past, present, and future**

Ziegler A.\* (\*aziegler@evolution.uni-bonn.de)

**Poster presentations on holothurians****New reports of echinoderms on the Caribbean coast of Central America Deep Basin: perspectives and projections**

Benavides R., Cambronero S.\*, Alvarado J. J. and Solís-Marín F.A. (\*sergiocambrosacs@gmail.com)

**Adhesion of sea cucumber Cuvierian tubules: identification and characterization of adhesive proteins**

Bonneel M.\*, Hennebert E., Demeuldre M., Wattiez R. and Flammang P. (\*marie.bonneel@umons.ac.be)

**Dynamic changes of gene expression during larval development of holothurian *Apostichopus japonicus***

Boyko A.\*, Girich A., Eliseikina M., Maslennikov S. and Dolmatov I. (\*alteroldis@gmail.com)

**The marine biotechnology of the sea cucumber and its exploitation in Mexico**

Caballero-Ochoa A.A.\*, Simental-Crespo D., Solís-Marín F.A. and Conejeros-Vargas C.A. (\*a.caballero.ochoa@ciencias.unam.mx)

**Sniffing out disease: Ulcerated holothuroids induce different chemotaxis behaviors in symbiotic and predatory crabs**

Caulier G.\*, Claereboudt E., Flammang P., Gerbaux P. and Eeckhaut I. (\*Guillaume.Caulier@umons.ac.be)

**Transcriptomic and proteomic identification of neuropeptide precursors and neuropeptides in the sea cucumber**

Chen M.\*, Hou Y., Storey K., Talarovicova A. and Elphick M. (\*chenmuyan@ouc.edu.cn)

**Potential species for the isolation and characterization of cytotoxic compounds of sea cucumbers in Mexico**

Conejeros-vargas C.A.\*, Simental-Crespo D., Solís-Marín F.A. and Caballero-Ochoa A.A. (\*conejeros@ciencias.unam.mx)

**Assessing the validity of ossicles as a taxonomic criteria for Mediterranean and north-western Atlantic sea cucumbers**

Díaz-Suárez A., Cánovas, F. and González-Wangüemert M.\* (\*mwanguemert@ualg.pt)

**Mass mortality of echinoderms across the Algarve coast (south Portugal) after the storm Emma**

Domínguez-Godino J.A.\*, Domínguez-Godino S., Ricart A. and González-Wangüemert, M. (\*jorge.adg86@gmail.com)

**Is magnesium concentration in the skeleton a predictor of echinoderm sensitivity to ocean acidification?**

Dubois P.\* (\*phdubois@ulb.ac.be)

**Genetic population structure of the black sea cucumber *Holothuria (Halodeima) atra* around Okinawa-Jima island**

Hamamoto, K.\*, Soliman, T. and Reimer, J.D. (\*hamachanman1@gmail.com)

**Purification and kinetic characterization of novel proteases from the sea cucumber *Holothuria inornata* from Chamela Bay, Jalisco, Mexican Pacific**

Hernández Melgar A.G., Osorio Kuan J.A., Espinosa de los Monteros R.A., Solís-Marín F.A., Salgado Ortiz N. and Simental D. (\*froz9@comunidad.unam.mx)

**Inducing in vitro oocyte maturation of *Holothuria arguinensis* and *Holothuria leucospilota*, using radial nerve extract**

Kalvani B., Sodagar M., Mazandarani M., Noori A. and González-Wangüemert M.\* (\*mwanguemert@ualg.pt)

**Regeneration after fission and transverse cutting in the holothurian *Cladolabes shcmeltzii***

Kamenev Ya.O. and Dolmatov I. Yu. (\* jarolkam@mail.ru)

**New discovery of wheel fossils of Ophiocistioidea and Holothuroidea from Japan**

Ogawa A.\*, Takahashi Y. and Fujita T. (\* a-ogawa@kahaku.go.jp)

**Observation of intestinal regeneration after induced evisceration in a sea cucumber, *Eupentacta quinquesemita***

Okada A.\* and Kondo M. (\* akari@mmbs.s.u-tokyo.ac.jp)

**Sea cucumbers as a potential marine collagen source: a high performance method**

Osorio Kuan J.A.\*, Espinosa de los Monteros R.A., Solís-Marín F.A., Salgado Ortiz N. and Simental, D. (\* jorgeosoriokuan@gmail.com)

**Sea cucumber type material of Carl Gottfried Semper (1832–1893) at the Danish natural History Museum in Copenhagen**

Reich M.\*, Ilsemann B. and Schiøtte T. (\* mike.reich@lmu.de)

**Sea cucumber as a potential source of photoprotective compounds: collagen and mycosporine-like aminoacids**

Salgado-Ortiz N.\*, Arreguín Espinosa de los Monteros R., Solís-Marín F.A. and Simental Crespo D. (\* noesalgadortiz@gmail.com)

**Echinoderm collection of the Zoological Institute of RAS as information base of fundamental biological investigation**

Smirnov I.\*, Ananjeva N., Pugachev O., Khalikov R., Lobanov A. and Voyta L. (\* smiris@zin.ru)

**Unusual ossicle morphology in sea cucumbers (Apodida) from the late Triassic Cassian formation, Italy**

Stegemann T.R.\* and Reich M. (\* tstegem@gwdg.de)

**Development of adult organs and the pentaradial body plan in a sea cucumber, *Apostichopus japonicus***

Udagawa S.\*, Nagai A., Saito M. and Kondo M. (\* udagawa@mmbs.s.u-tokyo.ac.jp)

**Vasa and piwi-like proteins in the tissues of the holothurian *Eupentacta fraudatrix* (Dendrichirota, Holothuroidea)**

Zavalnaia E.G., Petrova I. Yu., Eliseikina M.G., Girich A.S. and Dolmatov I.Yu. (eugenia\_94@inbox.ru)

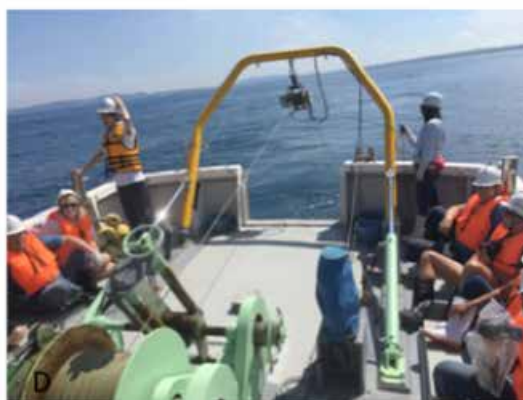
**The effect of melatonin on locomotor behavior and muscle physiology in sea cucumber**

Zhang T., Ding K.\*, Zhang L. and Yang H. (\* dingkui0929@163.com)

**Distribution and abundance of the sea cucumbers *Holothuria* spp. on coral communities in the Gulf of Thailand**

Yeemin T.\*, Sutthacheep M., Ruangthong C., Pengsakun S., Klinthong W. and Putthayakool J. (\* thamasakyemin@hotmail.com)

### A few photos from Nagoya International Echinoderm Conference



CIEC - Sea cucumbers sold in Nishiki food market de Kyoto, Japan.  
(photo J-P Féral)

## Up-coming conferences

### 1) 10<sup>th</sup> European conference on Echinoderms Moscow, 16–19 September 2019

Organizers of the conference:

- Borissiak Paleontological Institute of the Russian Academy of Sciences (RAS)
- Shirshov Institute of Oceanology (RAS)
- A.N. Severtsov Institute of Ecology and Evolution (RAS)
- Zoological Institute (RAS)
- A.P. Karpinsky Russian Geological Research Institute (VSEGEI)
- White Sea Biological Station of Lomonosov Moscow State University (WSBS)
- Department of Invertebrate Zoology, Biological Faculty of Lomonosov Moscow State University
- Lomonosov Moscow State University Marine Research Centre
- The Center of Oceanographic and Marine Biology (Moskvarium)

For more information: <https://10ece2019.com/>

### 2) WIOMSA 11<sup>th</sup> Scientific Symposium, 1–6 July 2019

The Western Indian Ocean Marine Science Association (WIOMSA), the University of Mauritius, and the Nairobi Convention are pleased to announce the 11th WIOMSA Scientific Symposium to be held in Mauritius in July 2019

Contributions from all relevant scientific disciplines are welcome at this multidisciplinary symposium.

For more information: [www.wiomsa.org](http://www.wiomsa.org)

### 3) 4<sup>th</sup> European conference of Tropical Ecology, 9–12 April 2019

The conference will take place in the UK city of Edinburgh, jointly hosted by the University of Stirling, the University of Edinburgh and the Royal Botanic Garden Edinburgh.

For more information: [www.britishecologicalsociety.org/events/ute2019/](http://www.britishecologicalsociety.org/events/ute2019/)

### 4) Islands Biology – La Reunion, 8–13 July 2019

For more information: <https://ib2019.sciencesconf.org>

### 5) World Congress on Recent Advances in Aquaculture Research & Fisheries

Aquaculture Research 2019 is scheduled from 9 to 11 June 2019 in Dublin, Ireland, on the theme “Sustainable Aquaculture and Fisheries”.

For more information: <https://aquaculture-fisheries.pulsusconference.com/>

## Publications related to holothurians, published in 2018

By Chantal Conand

As usual, a 'Google Alert' using the word 'holothurian' has been set up for the period from January to 15 December 2018. The same method had been used to produce the article 'Bibliography on holothurians: Access to modern tools to follow new publications'<sup>1</sup>, which was published in the SPC Beche-de-mer Information Bulletin #38.

Table 1 presents a summary of the findings and uses the same five categories (themes) that were used in the two previous issues of the bulletin.

**Table 1.** Number of documents related to 'holothurians' published in the period 1 January to 15 December 2018.

Month	General, ecology, biology	Biochemistry, microbiology	Genetics	Aquaculture	Fishery, socio-economics	Total per month
January	16	19	5	3	7	50
February	9	19	4	5	8	45
March	8	16	4	2	3	33
April	14	21	5	7	7	54
May	10	11	1	5	1	28
June	10	7	1	1	3	22
July	17	4	1	2	1	25
August	10	7	2	3	2	24
September	13	4	0	5	8	30
October	9	4	2	3	3	21
November	12	7	1	2	1	23
December	6	4	1		4	15
total	134	123	27	38	48	370
Ratio (%)	36.2%	33.2%	7.3%	10.3%	13%	100%

## New book on echinoderms

We are happy to announce the upcoming publication of the Guide of the echinoderms of Mayotte and its region, by F. Ducarme, edited by Les Naturalistes de Mayotte, already known for their impressive work on molluscs (Deuss/Richard/Verneau 2013).

This illustrated book will contain 168 species (of which 77 are new records for Mayotte), including 47 species of sea cucumbers. Next to classical species such as *Thelenota ananas* or *Holothuria atra*, there are locally abundant species (quite rare elsewhere) as *Bohadschia atra* (described from Mayotte specimens) or *Bohadschia subrubra* (illustrated below), but also rarer species, deep-sea species (down to 120 m) and illustrations of some probably not-yet described species.

The aim of this work is to shed light on echinoderms in some classical works like Richmond 2011 (Guide to the al. 2016 (Oursins, étoiles de mer et autres échinodermes : ecological, behavioural, taxonomic and cultural information followed by a research paper in English.



*Bohadschia subrubra* from Mayotte.  
(image: F. Ducarme)

## PhD theses

### The sea cucumber *Holothuria arguinensis*, as new species for aquaculture

Jorge Antonio Dominguez Godino

Presented the 5 December 2018, Cadiz University, Spain.

### Role of the benthic macrofauna in the functioning of the food web of the *Posidonia oceanica* (L. Delile 1813) ecosystem, in the coastal zone of Mostaganem

Nor-Eddine Belbachir

Presented the 13 December 2018, Department of Biology, University Abdelhamid Ibn Badis, Mostaganem, Algeria.

#### Abstract

Among the fauna inhabiting the *Posidonia oceanica* seagrass meadow, holothurians are particularly abundant and provide essential ecological roles, including the organic matter recycling within seagrass sediments. This work aims to (1) have an idea about the *Posidonia* meadow of the Mostaganem coast (Stidia), through the characterization of the most important aspects of the biology of this marine plant, which is the flowering and fruiting; (2) have an insight about the feeding behavior of the four most abundant holothurians species on the Mostaganem coast [*Holothuria (Roweothuria) poli*, *Holothuria (Holothuria) tubulosa*, *Holothuria (Panningothuria) forskali* and *Holothuria (Platyperona) sanctori*]; (3) investigate the trophic niche of these organisms, through the measurement of nitrogen and carbon stable isotope ratios. Inflorescences of November 6, 2017 bear only flowers. Each inflorescence carries between 1 and 4 spikelets, with an axis length ranging between 24 mm and 27 mm. The majority of the examined spikelets carry 2 to 3 flowers. The latter are 56.2% to 78.6% hermaphrodite and 21.4% to 43.8% are male. The inflorescences of January 8, 2018 bear aborted fruits and ovaries. Each inflorescence carries between 2 and 4 spikelets, with an axis length ranging between 20 mm and 33 mm. The spikelets of the second prospecting carry a single fruit, sometimes two and some does not carry any. The fruit length is between 7 mm and 15 mm. Most holothurians have a selective behavior for organic matter and eject feces with high levels of organic matter, which is attractive to other consumers. Stable isotope mixing models demonstrated the importance of epiphytic material in holothurians diets. Interestingly, the contribution of *P. oceanica* to the holothurians diet was limited. The stable isotope approach did not reveal dietary differences between species and the four species exhibited significant isotopic niche overlap. However, niche sizes differ between species showing more variable individual trophic diversity in some species. High values of  $\delta^{15N}$  in holothurians and their food sources were observed at both sites. This highlights that the site of Stidia is also impacted by human activity (agriculture) despite the presence of a relatively healthy seagrass meadow.

### Systematic studies on sea cucumbers of the family Stichopodidae (Echinodermata: Holothuroidea)

Woo Sau Pinn

Presented in December 2017, Graduate School of Science, Hokkaido University Department of Natural History Sciences, Japan.

[https://eprints.lib.hokudai.ac.jp/dspace/bitstream/2115/69423/1/Woo\\_Sau\\_Pinn.pdf](https://eprints.lib.hokudai.ac.jp/dspace/bitstream/2115/69423/1/Woo_Sau_Pinn.pdf)



## Holothurians sold in retail markets in France and Australia

By Chantal Conand

### In a supermarket in Paris, France

Frozen sea cucumbers from Viet Nam can now be found in Paris (Fig. 1A) at a price of EUR 48 kg<sup>-1</sup>. The identification is incorrect, as the sandfish *Holothuria scabra* does not look like the ones presented here (Fig. 1B) and *H. vagabunda* is not a valid scientific name (Fig. 1C).



Figure 1. Frozen sea cucumbers from Viet Nam found in a Paris market.

### In a shop in Melbourne, Australia

Many different species of different origins are presented in a shop (Fig. 2) where photos were not allowed to be taken, but the prices were advertised as AUD 300 for a species sold as teatfish (certainly *Holothuria fuscogilva* or *H. whitmaei*) and AUD 200 for *Thelenota ananas*. There were also many *Apostichopus japonicus*, *Holothuria scabra* and other species. Most products were dried, but some were frozen.



Figure 2. A shop in Melbourne, Australia selling boxes of dried sea cucumbers.

## Sea cucumbers in the news

List compiled by Chantal Conand

*Reported by Tim Gentle*

**Washington man gets prison for overharvesting sea cucumbers**

<https://www.theguardian.com/environment/2018/sep/27/sea-cucumber-poacher-washington>

**Sea cucumber framing in Borneo**

<http://www.theedgemarkets.com/article/reuters-special-report-ocean-shock-big-aquaculture-bulldozes-borneo>

*Reported by Mercedes Gonzalez-Wangüemert (mwanguemert@ualg.pt)*

**Maritime police seizes 550 kilos of sea cucumbers illegally fished (June 2018)**

<https://www.acores24horas.pt/arquivo/86372>

**Fifteen days opening for sea cucumber fishing in Yucatan (March 2018)**

[http://progresohoy.com/noticias/autoriza-sagarpa-15-dias-para-la-pesca-de-pepino-de-mar-en-yucatan-10099005/?utm\\_source=dlvr.it&utm\\_medium=facebook](http://progresohoy.com/noticias/autoriza-sagarpa-15-dias-para-la-pesca-de-pepino-de-mar-en-yucatan-10099005/?utm_source=dlvr.it&utm_medium=facebook)

*Reported By Alice Chen*

**Chinese sea cucumber farmers count cost of deadly heatwave – but for some it's a boon (August 2018)**

<https://www.scmp.com/news/china/society/article/2158698/chinese-sea-cucumber-farmers-count-cost-deadly-heatwave-some-its>

*Reported by Steven Purcell*

Here's a YouTube video that was apparently uploaded recently – very popular. Good facts for the general public (although I have to say I've never considered them dangerous).

<https://youtu.be/CUA7MAI0ok4>

*Reported by Chantal Conand*

**Opening of the sea cucumber fishing season in French Polynesia (August 2018)**

[https://www.tahiti-infos.com/Ouverture-de-la-campagne-de-peche-reglementee-aux-rori-a-Raroia-et-Faaite\\_a173868.html](https://www.tahiti-infos.com/Ouverture-de-la-campagne-de-peche-reglementee-aux-rori-a-Raroia-et-Faaite_a173868.html)

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