

9<sup>th</sup> Edition of International Conference on **Environmental Science & Technology**  
&  
48<sup>th</sup> World Congress on **Microbiology**  
&  
50<sup>th</sup> International Congress on **Nursing Care**

June 24-25, 2019 Moscow, Russia



## Ocky Karna Radjasa

Diponegoro University, Indonesia

### Bioprospecting of microbial symbionts from Indonesian reef ecosystems

Indonesia is the global epicenter of marine biodiversity and is one of the mega diverse countries that harbors majority of the Earth's species. Indonesia is well-known for housing unique and diverse marine invertebrates. Natural products from reef invertebrates greatly expand the chemical diversity available for biotechnological exploitation. Marine invertebrates such as sponges, tunicates, soft-corals are sources of a diverse array of bioactive metabolites with great potential for development as drugs and research tools. Diverse reef invertebrates are the target of this project because their associated microorganism communities occupy a unique niche in the ocean's biota. It has been hypothesized that reef invertebrates can be viewed as miniature ecosystems and their rich bio-complexity will benefit our work. One of the most serious bottlenecks in developing natural products from marine sources during the past decades has been the availability of biomass and/or of optimized cultivation conditions to gain sufficient amounts of compound for preclinical and clinical studies. Symbiotic systems in which there is a strong likelihood of bioactive microbial metabolite synthesis offer attractive alternatives to chemical synthesis or extraction from natural sources. Microbial symbionts that can be cultivated in the laboratory and still produce the bioactive metabolite can then be subjected to enhanced fermentation to produce large amounts of the targeted compound. Bacterial and fungal symbionts are considered to be a rich source of unique bioactive molecules that are rarely produced by terrestrial microorganisms. The project specifically uses organisms and methods that overcome this bottleneck by using microbial symbionts of Indonesian reef invertebrates, which can be grown in large scale in the laboratory and that, are potent producers of bioactive compounds.

### Recent Publications

1. Ayuningrum D, Liu Y, Riyanti Sibero M T, Kristiana R, Asagabaldan M A, Zerlina G Wuisan Z G, Trianto A, Radjasa O K, Sabdono A and Schäberle T F (2019) Tunicate-associated bacteria show a great potential for the discovery of antimicrobial compounds. *PLoS ONE* 14(3):1-14.
2. Sibero M T, Radjasa O K, Sabdono A, Trianto A, Triningsih D W and Hutagaol I D (2018) Antibacterial activity of Indonesian sponge associated fungi against clinical pathogenic multidrug resistant bacteria. *Journal of Applied Pharmaceutical Science* 8(2):088-094.
3. Sarian F D, Š Janecek, Tjaard Pijning, Ihsanawati Z Nurachman O K Radjasa, L Dijkhuizen, D Natalia and Marc J E C van der Maarel (2017) A new group of glycoside hydrolase family 13  $\alpha$ -amylases with an aberrant catalytic triad. *Scientific Reports* 7:44230.
4. Puspita M, Deniel M, Widowaty I, Radjasa O K, Douzenel P, Marty C, Vandanjon C, Bedoux G and Bourgougnon N (2017) Total phenolic content and biological activities of enzymatic extracts from *Sargassum muticum*

## JOINT EVENT

9<sup>th</sup> Edition of International Conference on **Environmental Science & Technology**  
&  
48<sup>th</sup> World Congress on **Microbiology**  
&  
50<sup>th</sup> International Congress on **Nursing Care**

June 24-25, 2019 Moscow, Russia

---

(Yendo) Fensholt. Journal of Applied Phycology 29 (5):2521.

5. Kusmita L, Mutiara E V, Nuryadi H, Pratama P A, Wiguna A S and Radjasa O K (2017) Characterization of carotenoid pigments from bacterial symbionts of soft-coral Sarcophyton sp. from North Java Sea. Int. Aquat. Res. 9: 61-69.

### Biography

Ocky Radjasa is a Professor of Marine Microbiology at Diponegoro University, Indonesia. He graduated from McMaster University, Ontario, Canada and obtained his PhD from department of Aquatic Biosciences, University of Tokyo, Japan in 2001. He was a Humboldt fellow at IFM-GEOMAR, Kiel, Germany. His research interests covering marine microbial diversity, marine microbial natural products and coral diseases. Currently, he is also serving as the Director of Research and community services of Indonesian Ministry of Research, Technology and Higher Education in Jakarta.

[ocky\\_radjasa@yahoo.com](mailto:ocky_radjasa@yahoo.com)

### Notes: