

New compounds from Indonesia marine sponge-associated fungi as a promising antibacterial agent**Aninditia Sabdaningsih^{1,2}, Yang Liu^{2,3}, Olvi Cristianawati¹, Mada Triandala Sibero¹, Handung Nuryadi^{1,4}, Muhammad Syaifudien Bahry¹, Ocky Karna Radjasa^{1,5}, Agus Sabdono¹, Agus Trianto¹, Till F Schaberle^{2,3,6}**¹Diponegoro University, Indonesia²University of Giessen, Germany³Fraunhofer Institute for Molecular Biology and Applied Ecology, Germany⁴University of the Ryukyus, Japan⁵Ministry of Research, Indonesia⁶German Center for Infection Research (DZIF), Germany

The ability of sponge-associated fungi to biosynthesize antibacterial compounds has been reported in many studies. However, the number of studies reporting fungus-derived natural products that show activity against multidrug-resistant (MDR) bacteria is much lower. Therefore, it was aimed to isolate sponge-associated fungi from The Wakatobi National Park as a bioresource for novel natural products with a promising activity profile against MDR bacteria. In total, 20 fungi were isolated from 10 different sponges. Among the all isolated fungi, only the fungus WK-P9, cultivated in malt extract medium, showed potential activity against the ESKAPE pathogens *Acinetobacter baumannii*, *Klebsiella pneumoniae*, and *Staphylococcus aureus*. The inhibition profile varied dependent on the growth phase, since the strongest activity was observed when cultivated for 12, 21, 21 days, respectively against *A. baumannii*, *K. pneumoniae* and *S. aureus*. According to molecular and macro-microscopic identification, the fungus WK-P9 was identified as *Penicillium citrinum*. The sequence was deposited in GenBank with accession number LC371661. So far, five new compounds

were isolated and their structure elucidated. This highlights that this fungal strain can be regarded as a proliferative producer of even novel specialized metabolites. However, the active component causing the Gram-negative activity is still unknown and further investigation of this fungus is still in progress. New natural products will be presented.

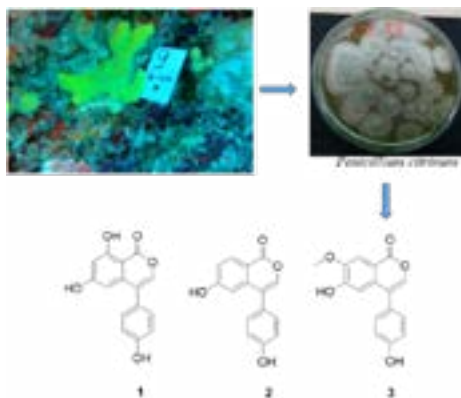


Figure: Selected structures from *P. citrinum* as part of Isocoumarin.

Biography

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