World Academy of Science, Engineering and Technology
International Journal of Geological and Environmental Engineering
Vol:12, No:02, 2018

Preliminary Study of Sponge Spicule to Understand Paleobathymetry, Sentolo Formation, Kulon Progo, Daerah Istimewa Yogyakarta

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Abstract : The phylum Porifera, commonly known as sponges, is a group of primitive animals living since Paleozoic-recent, currently have over 8300 described species, where the majority lives in the marine environment and sessile or in situ. Sponge spicule is one part of the body that secreted by sponge; this spicule can be well preserved because it composed of silicate material. Sponge spicule was identified based on morphological form, which was classified into two main classes, Megasclere and Microsclere. Any form of spicule morphology will indicate a particular sponge species, and it also related to the sponge living environment. Therefore, understanding the paleobathymetry using spicules can be done and more detailed because of sponge living in situ. The methods used in this paper are stratigraphic measurement, continuous sampling, and sieve preparation to dissolve calcareous and siliciclastics materials. Then, each spicule was picked by picking method for every 100 grams of each sample and identified the morphological form to determine the order and abundance of spicule. 10 samples have analyzed, 1489 spicules were identified, there were two classes of Porifera, Demospongiae, and Hexactinellida. Five orders of Porifera also identified in the research area, Haplosclerida, Hadromerida, Agelasida, Lithistids, and Lyssacinosida. The results from descriptive analysis and spicule abundance can be understood that the paleobathymetry of research area was in intertidal zone. Furthermore, the variation and abundance of sponge spicule can be used to understand the paleobathymetry and depositional environment.

Keywords : paleobathymetry, Sentolo formation, sponge, spicule
Conference Title : ICPB 2018 : International Conference on Paleontology and Biostratigraphy
Conference Location : Dublin, Ireland
Conference Dates : February 15-16, 2018