ELEMENT CONTENT OF MOSS AS POSSIBLE AIR POLLUTION INDICATOR AROUND RENEWABLE ENERGY PLANT

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ABSTRACT

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The study was conducted to determine the pollution level of heavy metals surround the Jengka Renewable Energy Plant at Jengka 9 based on the concentration of metals deposited in the moss samples as bioindicator. The twelve samples of moss were collected from three locations where each of location has different distances from plant center; 50m, 100m, 150m, and 200m. The sampling technique and sample treatment were done based on the standard procedures that had applied by other researcher. The total concentration of Fe, Al, Zn, Cu and Cr were analyzed by using ICP-OES after an acid digestion with hot plate. The mean concentration of metals was 3080.92mg/kg for Fe, 1095.47mg/kg for Al, 53.22mg/kg for Zn, 31.90mg/kg for Cu and 6.88mg/kg for Cr and were ranked in increment order of Fe > Al > Zn > Cu > Cr. The study was found that at distances 50m and 100m had the highest concentration of metals compared to other distances. Three pollution indices; contamination factor (CF), enrichment factor (EF) and pollution load index (PLI) were used to evaluate the level of contamination of these metals. The values of EF found in this study clearly showed that the high concentration of metals in moss samples were contributed by anthropogenic activities which expected influenced by the nearby industrial site and transportation. The observed PLI value clearly indicated that the environment surrounding Jengka Renewable Energy Plant was polluted by the studied metal. In general, based on the correlation data, it could be concluded that all the metals (Fe, Al, Cu and Cr) would be originated from the same sources except for metal of Zn.

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