

Utilization of Dragon Fruit (*Selenicereus costaricensis*) Peels to absorb Lead (Pb) Metal from Seawater (Saline Water) of Kenjeran Beach, Surabaya

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Abstract

Water pollution is one of the environmental issues that causes threats to the water bodies. It is a contamination that is usually created by human activities. Harmful substances such as lead (Pb) metals are usually dumped into rivers and oceans as industrial waste. Previous studies confirmed that its concentration in Kenjeran Beach, Surabaya, is high. It has an average of 0.1696 ppm, above the permissible limit of the Indonesian Minister of Environment No. 51 of 2004, which states that the maximum limit of lead in seawater is 0.005ppm. Hence, it is not safe for the aquatic organisms living in Kenjeran Beach to be consumed by humans as it is contaminated with lead, which can lead to negative effects to the human body. The aim of this study was to utilize dragon fruit peels to absorb lead ions diffused in the seawater. Samples were collected and prepared, 1 control sample (sample containing seawater), and 1 treatment sample (sample containing seawater mixed with dragon fruit peel powder). Data were analyzed descriptively and qualitatively. It was then compared with the quality standards of heavy metals according to the Indonesian Ministry of Environment regulation No. 51 of 2004. AAS (Atomic Absorption Spectrophotometer) was used to determine the concentration of lead ion in the samples and the experiment was conducted at the Instrument Analysis Laboratory in Chemical Engineering Study Program from Widya Mandala University. The results of the research showed that the dragon fruit peels do absorb the lead ion from the seawater.

Keywords: heavy metals, dragon fruit peel, Kenjeran beach seawater, lead metal ion, concentration