

# 8<sup>th</sup> World Congress and Expo on Recycling

June 25-26, 2018 | Berlin, Germany

## Seafood wastes highly in demand for wastewater treatment process

Mary Ann M Arizo

University of the East, Philippines

Heavy metals are highly present in bodies of water due to the fast development of various technological industries. It poses a great threat to the environment especially in human health. Several methods are being used to remove heavy metals from aqueous wastes and each has its own merits and demerits. Therefore, utilization of biosorbent material from dead biomass has developed as an alternative technology for wastewater treatment process. This research aimed to develop a biosorbent material made from the combination of *Sargassum ilicifolium*, crab and shrimp exoskeletons to reduce the lead content from chemical wastes. The dead brown seaweeds which create a pile of waste materials along a shoreline were collected in which the alginic acid was extracted. The cooked crab and shrimp shells were collected as leftovers from different seafood restaurants which were utilized to produce chitosan. Determination of optimum physico-chemical parameters was conducted: biomass concentration time course of Pb uptake (3, 6 and 12 hours) and pH (1.0, 2.0 and 3.0). The chemical wastes having high concentration of Pb were treated using the materials formulated and were analyzed using UV-VIS spectrophotometer. Determination of alginate content of *Sargassum ilicifolium* was done using gravimetric method while confirmatory test for chitosan was done by Fourier-transform infrared spectroscopy. Statistical results also proved significant differences among different intervals for each parameter. The percent removal rate are as follows: 6 g biomass (97.3%), at the 12-hour exposure (88.8%), and at the pH level of 3 (92.5%), respectively. Taken all together, waste materials like seaweeds and crab and shrimp shells can be used for the production of substances that can be used for wastewater treatment. This technique is an effective tool in removing toxic heavy metals to an environmentally acceptable limit in a cost effective and environmentally friendly manner.

ma21\_arizo@yahoo.com