

Colloquium on Applied Sciences 2024

19-21 January 2024, Faculty of Applied Sciences, UiTM Shah Alam, Malaysia

The effect of co-pyrolysis of coconut husk and sewage sludge on the bioavailability and environmental risk of Pb and Cd

Amirul Afiq Abu Hasan^a, Norjanah Yury^{a*}

Structured Abstract

Background: There are a lot of the research about the sewage sludge with the pyrolysis and also the HTC. However, a recent study show only use the method with only the sewage sludge with not give the best result for the char because of the high ash content. .So the sewage sludge must be pair with the coconut husk which is according to study has low ash content. This study the co HTC between the biomass and the sewage sludge to give the best result to find the bioavailability. The purpose of this study is to investigate the present of the Cd and Pb in the hydrochar.

Methods:The method that been use is the HTC process with three different temperature,240 ,270 and 300 degree celcius. Then, the sample of the hydrochar itself will run with the AAS to find out the present of the lead and cadmium. For the sample preparation, the acid digestion or the wet digestion had been use to digest the hydrochar.

Results: This study has not yet finished but the expected result will shows that the hydrochar will be low content of the Pb and also Cd and had it within the acceptable range of the natural needed. This is important because of the heavy metal itself has dangerous effect not only to the human but also to the plant itself and became poison to consumer, animals and human.

Conclusion: In conclusion, the findings of this study indicates that the co_HTC between the sewage sludge and coconut husk will do in less energy needed and also the hydrochar itself will give low ash content that will give a lot of the sample to be analyse. The present of the lead and also cadmium also important because of how dangerous the heavy metal to human and also to plant itself can can leading to death.

Keywords: Hydrothermal Carbonization, Sewage sludge , Coconut husk

*Correspondence: norjanah@uitm.edu.my

^a School of Chemistry & Environment, Faculty of Applied Sciences, Universiti Teknologi MARA, Shah Alam, Malaysia