ADSORPTION ON WASTE COOKING OIL USE ADSORBENT USED NEWSPAPER WITH MODIFICATION CITRIC ACID

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ABSTRACT

Fried traders tend to use a waste cooking oil and rarely replace it, they just a little new oil to the waste cooking oil to frying can trigger free radicals that can trigger health problems. the use of waste newspaper can be used as an adsorbent to improve the quality of waste cooking oil by reducing the levels of peroxides and free fatty acids. the type of research that to analyze the effect of variations in adsorbent mass and mixing time of used newspaper on the quality of waste cooking oil from frying.

Keywords: Adsorption, Adsorbent, Citric acid, Used Newspaper, Waste cooking oil

INTRODUCTION

Increasing production and consumption of cooking oil every year has a direct impact on creasing waste cooking oil production. Indonesia producers around 3,072 million liters of used cooking oil every year. The World Organization (WHO) reports that 1 liters waste cooking oil can

contaminate 1000 liters of water [2]. Waste cooking oil is waste cooking oil from the frying process. The high content of impurities is waste cooking oil such as Free Fatty Acids (FFA) will interfere with the transesterification process to produce derivative products. Therefore, the quality of the product is low.

Several methods to improve the quality of waste cooking oil is adsorption. The adsorption method is preferable to the adsorption to the adsorption method due to adsorption is more economical, able to remove organic, and no poisonous side effect occur [3,4,5].

Paper such as newspaper is an alternative method that is more effective and inexpensive because it utilizes agriculture used or by-products such as grain, soybean husk, straw, cottonsees, bark, used newspaper and others. Paper such as newspaper is a material that contains components of cellulose (50.1%), hemicellulose and lignin (18.1%), thus it can be used as an adsorbent [1].

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$$\frac{\partial(\rho u)}{\partial t} + \nabla.\left(\rho u \vec{V}\right) - \nabla.(\mu \nabla u) = -\frac{\partial p}{\partial x} \quad (1)$$

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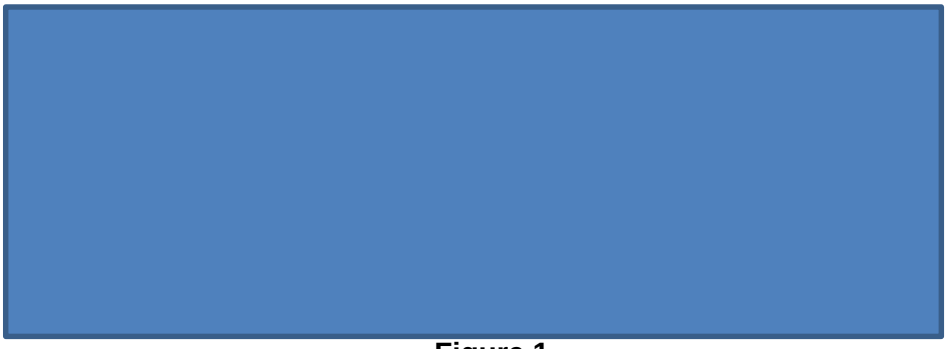

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ACKNOWLEDGEMENTS

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CONFLICT OF INTEREST

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AUTHOR CONTRIBUTIONS

ABC conducted the experiment, XY conducted the DFT calculations, ABC and XY wrote and revised the manuscript. All authors agreed to the final version of this manuscript.

REFERENCES

References are placed at the end of the manuscript. The authors are responsible for the accuracy and completeness of all references. References must be up to date; the total references cited is a minimum of 20, and the minimum percentage of up-to-date references (published less than ten years) is 80%. Number the references (numbers in square brackets) in the list in order to appear in the text. Specifically, be guided by the following example:

[1] Widjonarko, D.M., Jumina, Kartini, I., and Nuryono, 2014, Phosphonate modified silica for adsorption of Co(II), Ni(II), Cu(II) and Zn(II), *Indones. J. Chem.*, 14 (2), 143–151. [Journal article]

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