

Utilization of Sugarcane Bagasse and Coconut Fiber Bioadsorbents to Reduce Free Fatty Acids in UCO

Nurjannah¹, Andi Artiningsih¹, Muh. Rajab^{1,*}, Muhammad Alifhatul Rifqy¹

¹*Department of Chemical Engineering, Faculty of Industrial Technology, Universitas Muslim Indonesia, Makassar 90231, Indonesia*

**Presenter's email: ion.muhrajab@gmail.com*

Abstract. The use of used cooking oil (UCO) in the long term is extremely dangerous for health; the adsorption method is one way to improve the quality of used cooking oil. Free fatty acids formed from the use of cooking oil, will close the lumen of the blood vessels, and form atherosclerotic plaques that shrink the lumen of the blood vessels due to the attachment of fat, macrophages, and platelets attached to the tunica intima and tunica media of blood vessels. Sugarcane bagasse and coconut fiber can be used as adsorbents for used cooking oil, because they contain high lignin and cellulose. Several factors affect the quality of adsorption results, ranging from adsorbent particle size, soaking time, and activator type. This study aims to determine the best AT (bagasse) and SK (coconut fiber) waste ratio variation as an adsorbent for used cooking oil and to determine the best adsorption time. The adsorption process was carried out with a ratio variation (%): 25 AT: 75 SK, 50 AT: 50 SK, 75 AT: 25 SK and time variations of 90, 120 and 150 minutes. The best variation in reducing free fatty acid levels is the 25% AT adsorbent variation: 75% SK and 50% AT: 50% SK, each with 150 minutes adsorption time, decreased by 0.73%.

Keywords: Adsorption, Coconut Fiber, Sugarcane Bagasse, Used Cooking Oil