

UGM Students Optimize Biodiesel Potential from Waste Cooking Oil

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In order to reduce the consumption of depleting petroleum, biodiesel becomes one of potential renewable energies to be developed. Therefore, five UGM students namely Jolang Budiarta, Ahmad Fauzy, Mohamad Ulil Absor from Faculty of Mathematics and Natural Sciences collaborating with Muhammad Isma'il Hamidiy and Taufiqur Rohman from Faculty of Engineering conducted a research on optimizing the biodiesel potential from waste cooking oil.

The research motivation was based on data from Indonesian Statistics Centre which stated the consumption of cooking oil in Indonesia in 2015 is up to 10,052 liters per person. Therefore, it can be estimated there is abundance of those waste cooking oils that can be processed into biodiesel.

“Most of those waste cooking oils are discharged into waterways, thus polluting the environment. Therefore, we initiated ways to utilize them into biodiesel,” said Jolang Budiarta at UGM Campus on Wednesday (31/5).

According to Jolang Budiarta, biodiesel becomes one of the alternative choices towards energy sustainability in the future. Therefore, it is essential to conduct this kind of research.



Jolang said biodiesel processing can be done by reacting waste cooking oil with alcohol which will produce biodiesel and glycerol. Unfortunately, this method produces glycerol as the reaction's side product.

"This side product can pollute the environment, thus we conduct an advanced research to process the glycerol into a usable compound," he added.

Meanwhile, Taufiqur Rohman said one of the biodiesel quality indicators is cetane number which shows the delay time for fuel and air inside the piston to be burnt. The low cetane number makes the delay time longer which leads to the lower efficiency of the system.

"The research done by Rao and Rao in 2011 shows triacetin is a compound that can increase the performance of biodiesel by increasing its cetane number. Glycerol can be used to optimize the quality of biodiesel by converting it into triacetin," said Taufiqur Rohman.

The superiority of those students' research in transforming waste cooking oil into biodiesel is the use of green chemistry based method. Therefore, it does not produce hazardous material for the environment.

"We hope this research can become one step forward for the research in biodiesel and energy fields," said Prof. Drs. Jumina, Ph.D., their supervision lecturer.

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