Utilizing Charcoal, UB Professor Rewarded an International Medal

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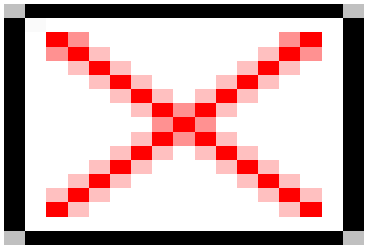

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"It does not really matter whether we come from prestigious and/or sophisticated institutions, to what extent we want to develop ourselves and our minds that become the defining factor!" It is said by Prof Ir I Nyoman Gede Wardana, MEng Ph.D. when he's being rewarded with Scientist of the Year Medal from IAAM (International Association of Advanced Materials), Stockholm.

Prof. Wardana contributed his thought to the reactions of melecularism occurring in a semiconductive combination of copper oxide with graphene (Active carbon in the form of hexagonal sheets) in converting vegetable oils to Hydrogen.

In his research found that, on the nano scale, when energy is applied to the semi conductor and graphene occurs 2 reactions. The first reaction in the semiconductor electron will jump while the electron activated carbon will rotate. The dance formed from the electron turned out to increase the efficiency of the conversion of vegetable oil into hydrogen. From the research that is still developed this level of efficiency obtained up to 10 times than the reaction using semiconductor only.

This very innovative and fundamental contribution of thought attracted IAAM to invite this Tokyo Keio University graduate professor. As his thinking was considered ground breaking, the Scientist of The Year Medal was awarded to Prof Wardana. In addition to the awards are also given the privilege of being a member of IAAM for free for 5 years.

His idea is originally departed from the phenomenon of fossil fuel use in Indonesia. He is concerned with the use of unsustainable energy sources. On the other hand, Indonesia has a lot of alternative fuel sources such as kapok seed oil, or castor oil. The biggest obstacle to this alternative source is its efficiency.

So since 4 years ago, he developed research on the conversion of cotton seed oil and distance to Hydrogen through semi conductor copper oxide. The research was developed in conjunction with the students in the master and doctoral program as a series of educational and research activities.

What's so special is in 2015, when he has a study visit to Austria, Prof. Wardana was inspired when he saw researchers developing batteries that use carbon from coconut shells.

"Austrians do not have abundant coconut as Indonesia. They can develop it, so why can't us? We can surely develop it more!" he said during a press conference with Malang media crew.

From there Prof. Wardana undertook basic daily charcoal research which is easy to obtain. It was found that activated carbon that has been treated with advanced technology, Graphene, can improve the efficiency of the reaction. Graphene itself is developed in stealth aircraft technology.

In the process, Vegetable oil is heated to evaporate. This vegetable oil vapor will be passed through a tube that has been fitted with copper oxide and Graphene with an electrically powered 1:3 ratio. The vegetable oil vapor that has been turned into Hydrogen enters the container tube.

The contribution of this thinking is then gain the international achievement, housed in the M/S Mariella, Viking Line Ship. The IAAM's medal award is a series of activities of the European Advanced Materials Congress in 2017 that invites 800 scientists from around the world. IAAM provides this award to multi-field researchers; Mathematics, Biology, Chemistry, Earth Sciences, Marine, Engineering Physics, and medicine. This medal is aimed at a researcher focused on Nanoscience & Nanotechnology.

Department of Mechanical Engineering UB. in addition to activities in the field of education, Prof. Wardana is also active in research activities and Community Service. In 2009, he was also invited to present a paper in The 20th International Symposium on Transport Phenomena, at Victoria University, Victoria BC, Canada.

Professor whose son is also Professor at Keio University is advised the Indonesian researchers to continue contributing the best thought they have. He also encourages researchers and lecturers to actively write and publish internationally.

"The most advanced laboratory is our brain! Do not make the limited facilities and infrastructure hold our ability and willingness to innovate!" he said. (**emis/mic/Humas UB**)