

Students Win Annual Biology Exhibition

Friday, 13 May 2016 WIB, By: Marwati



Students of the Faculty of Agriculture UGM became the first winner in the *2nd Annual Biology Exhibition* held from 26-28 April 2016 at the Medan State University. They are Cahaya Prautama and I Komang Adi Widyastama who are students of Microbiology Agricultural Department.

UGM team won the title after beating 223 other students. The competition was followed by teams of students from various universities in Indonesia. Some of them are from the University of North Sumatra, Medan State University, University of Bengkulu, Tadulako University, Padjadjaran University, Airlangga University, Brawijaya University, and the Universitas Gadjah Mada.

Cahaya mentioned that in this competition they submitted a paper entitled "*Metabolic Engineering of Clostridium perfringens Pathogenic Bacteria to Generate Hydrogen as Renewable Energy*". It outlines the potential of pathogenic bacteria which cause diarrhea and stomach cramps, *Clostridium perfringens*, as a source of hydrogen for renewable energy. This type of bacteria is found in red meat, animal or human feces.

"By doing metabolic engineering to the pathways of bacteria, we can produce hydrogen 50 percent more than by doing it at other bacteria that exist in nature," he said on Friday (13/5) at the Faculty

of Agriculture.

The utilization of *Clostridium perfringens* bacteria that have been engineered is expected to support the development of renewable energy in Indonesia. Hydrogen production through this method could be an alternative solution to overcome the scarcity of fossil energy in Indonesia. In addition, it can address the environmental crisis because the production of hydrogen from these bacteria produces no carbon emissions.

"We hope this idea can be immediately implemented so that the benefits can be felt directly by the public," I Komang added.

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