

## UGM Students Utilise Residue to Become Acoustic Panel

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A group of students has processed the residue of sugar palm flour to make acoustic panel. Universitas Gadjah Mada (UGM) students comprising Ardhi Kamal Haq, Said Ahmad, Muhammad Dwiki Destian Susilo, and Pamela Chanifah Zahro won a gold medal in the *International 2nd World Innovation Technology Expo (WINTEX) 2019*. The event was organised by Indonesian Invention and Innovation Promotion Association (INNOPA) from 9-12 October 2019 in Taman Mini Indonesia Indah, Jakarta.

Ardhi said this started from the concerns that the residue of sugar palm flour processing that was found in MSMEs had surpassed the limit levels set out by government. Like what happened in the Bendo hamlet, Daleman village, Tulung district in Klaten regency, Central Java where each industry in the village produced up to 600-700 kg of residue per day.

"If that amount of residue is left as they are, it will create pollution in the surroundings," said Ardhi on Friday (25/10) in a press conference at Material Physics Lab UGM.

The students then found a solution to the problem. Under the guidance of Dr. Mitrayana M.Si, since September 2018, they developed an acoustic panel with the main material coming from the fibres of the residue. The residue was dried under the sun. Next, they separated the fibres from the powder.



Furthermore, the fibre was mixed with starch glue and shaped in a mould. It was then pressed to 1,000 psi to make it solid. Later, the material was heated in the oven for 2 hours at 100°C. The last step was to give a finishing touch to the acoustic panel.

“The result is an acoustic panel prototype at a dimension of 29.7 cm x 42 cm,” he explained.

Dwiki added the panel can absorb sounds very well as it has an impedance of 95 percent.

“This means that almost all sounds that come in will be absorbed in the acoustic panel,” he said.

The panel made by the UGM students not only resolves pollution problems but also gives an environmentally friendly alternative to acoustic panels. Most of the panels in the market still use synthetic materials such as foam and styrofoam.

“Hopefully, the acoustic panel from the sugar palm flour residue will help minimise waste problems and also replace the regular panels with an environmentally friendly material,” he said.

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