

UGM Develops Tannin-Based Natural Dye From Merbau Waste

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The UGM research group Indonesia Natural Dye Institute (INDI), together with partners and students from multiple disciplines, has established a mini natural dye plant in Jayapura, Papua. The plant will produce eco-friendly tannin-rich dye powder extracted from Merbau (*Intsia bijuga*) waste.

“This forest product waste has the potential to be a source of raw materials for the natural dye industry,” said Head of INDI Prof. Edia Rahayuningsih at the plant’s inauguration on Tuesday (22/2).

According to estimates, more than 90% of textile craftspeople and industries in Indonesia use synthetic dyes amid the country’s abundant natural dye resources. The raw materials for these synthetic dyes are even imported with a large capacity. The problem is that Indonesia has yet to reach its potential to harness these assets.

“We have a wealth of natural dye resources that have been passed down from generation to generation,” she said.



Papua's forest byproducts and waste can account for 20-40% of the total mass of trees. Unfortunately, this waste has not been used optimally and is usually thrown away or burned, causing problems for the environment.

"The production can reach 1.4 quintals per day because the raw materials are abundant," she said.

Rahayuningsih hopes this natural dye powder can advance to the commercialization stage so that batik craftspeople or the textile industry can start using this product while supporting the SDGs.

UGM Rector Prof. Panut Mulyono appreciated the plant's establishment that could boost the economy of the Papuan people. He hopes this plant can help Indonesia become an exporter of natural dyes in the future. Dr. Ika Dewi Ana, the initiator of INDI, added that researchers had worked hard to develop industrial techniques to produce quality natural dyes.

"From exploring the history, philosophy, and techniques of the natural dye industry to researching the stability of colors, hence they don't quickly fade. I think this natural dye innovation is part of future technology," said Dr. Ika.

Author: Gusti Grehenson

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