

# Save Orchid from Extinction by Genetic Engineering

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*Dendrobium phalaenopsis* orchid is critically endangered in Indonesia. Fewer species of the orchid has been found in the wild due to domestication and its use as host in orchid breeding.

"Conservation is needed to prevent the orchid from extinction," said Nintya, doctoral biology student of UGM at Faculty of Biology UGM on Thursday.

Nintya said conservation can be done by culture or genetic engineering. Nintya has done research in insertion of AtRKD4 gene for induction of somatic embryo in *Dendrobium phalaenopsis*.

"AtRKD4 gene insertion can multiply the buds of the orchid," she said.

In the research dissemination event, Nintya said there were significant differences between somatic embryo that is not inserted with AtRKD4 gene.

"In the embryo not inserted with AtRKD4 gene, only one bud will grow, while insertion will multiply

the buds,” said the Biology lecturer of Diponegoro university.

## **Black Rice Bran Potential for Heart Cancer**

Another doctoral student, Rizal Maarif Rukmana, who is also lecturer of Setia Budi University in Surakarta also disseminated his research in the event. The research was entitled *Cytotoxic Activities of Black Rice Bran’s Ethanolic Extract Fraction towards HepG2 Cells and Antiangiogenic towards Chorioallantoic Membrane*.

Rizal said black rice bran, particularly aleuron, contains many anthocyanin compounds that are beneficial for health. It is anti-diabetic, anti-mutagenic, anti-allergy, and anti-cancer. He tried to explore what bioactive compounds in the ethanolic extract of black and white rice bran.

The research showed that the extract of black and white rice bran contains anti-cancer compounds, namely flavonoid, phenolic, steroid, and terpenoid.

Rizal said ethanolic extract of black and white rice bran can inhibit proliferation, induce apoptosis, and inhibit angiogenesis. The ethanolic extract of black and white rice bran of Wajo Laka and white rice cultivar IR 64 has highest cytotoxic activity towards HepG2 cells.

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