

# UGM Students Study Local Fruits for Medication

Thursday, 16 June 2016 WIB, By: Marwati




A number of students of Universitas Gadjah Mada in Yogyakarta have conducted research to find out the efficacy of local fruits for medication. Javanese plum, coconut water, and cocoa extract have been made the object of research for these students. It turned out that these exotic fruits are truly beneficial for human health.

## Javanese Plum to Reduce Stress

Javanese plum (*Syzygium cumini*) is a local Indonesian fruit that has high antioxidant due to its high anthocyanin content. This potential has driven Mega Febia Suryajayanti, Anggi Laksmi Dewi, Bira Arumndari Nurrahma, Ayu Dewi Silvia Putri, and Zunnamila Khairia from Medical Faculty UGM to make it into extracts as natural antioxidant for stress relief.

Mega said the extract tastes better than the fruit as the sour natural taste has been removed. The extract named as 'Jablai' is made using ethanol 70%. This is then tested on model mice for acute stress restraint.



“The result showed that the Javanese plum extract can prevent blood pressures from increasing during acute stress,” she said on campus on Wednesday (15/6).

A dosage of 20 mg/200 gr of mouse weight and 40 mg/200 gr of mouse weight of this extract can prevent an increase in the blood pressure during acute stress. This dosage is equal to the effect of vitamin E or commercial antioxidants during acute stress.

“This research can inform the people on the beneficial effects of Javanese plums to relieve stress,” she said.

### **Coconut Water as Medium to Grow Stem Cells**

Another group of UGM students have made use of coconut water as alternative medium to grow stem cells. From Faculty of Veterinary Sciences: Mulya Fitrianda AR, Aprilia Maharani, Gifti Rosalina R, and Adam Darsono, in addition to Syifa Amalia Syakura from Faculty of Medicine have made Enriched Coconut’s Essential Medium based on coconut water to grow stem cells to the standardised medium of Dulbecco’s Modified Eagle Medium (DMEM).

“Stem cells development in Indonesia is still at a stop, one reason is because price of the medium for growing the cells is expensive,” said Mulya.

The students made use of coconut water natural compounds as the medium to grow the stem cells after seeing the characteristics of coconut water that resembles the physiological fluid of human body. Coconut water also contains cytokinins and Trans-Zeatin as anti-aging prevention and cell division.

“The abundant supplies of coconut trees in the country makes another economic benefit as an alternative medium to stem cells development,” said he.

In the research they used fibroblast cells that is obtained from hypodermis tissue of Wistar mouse's back at 3 months old for culturation and incubation. The result showed that the fibroblast cells in young and old coconut water medium has higher cell viability percentage than standardised medium in sequence 116.25% and 115.11% in the first 3 hours of incubation.

“We also made cytotoxic test that proved that coconut water is very safe to be applied for stem cell medication,” he concluded.

## Cocoa Extract Potential as Anti-Cancer Therapy

In Indonesia breast cancer is the No. 1 cause for fatality. This has prompted Amalia Najma Millatina, Susanti Mareta, Ajeng Dwi Khairunnisa, Ingesti Bilkis Zulfathina, and Naila Alfi from Faculty of Medicine to do research on anti-cancer herbal drug, which is *Theobroma Cacao* l. or known simply as cocoa.

“Cocoa contains anti-cancerous theobromine compounds. So, we did the research more intensively to know the efficacy to cure cancers,” said Amalia.

In their research they used the extract of cocoa peel and seed with chloroform and ethanol 70% solvents to get 4 extract types. The result showed that cocoa peel extract with chloroform solvent has highest cytotoxicity against breast cancer cells compared to the three other extracts.

Amalia added the extract of cocoa peel in chloroform solvent is safer for normal body cells, however, the anti-cancer effects it carries cannot yet be equalised to those of chemotherapy. In the future, further research is necessary to do to measure the Theobromine level in the cocoa extract.

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