

## Breadfruit Leaves to Cure Gingivitis

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Diabetes is one of the biggest health problems in the world, including Indonesia. Data from International Diabetes Federation (IDF) mentioned as high as 10 million of diabetes cases happening in Indonesia, which is still increasing.

One of the problems facing diabetes patients is gingivitis or gum inflammation, which causes the gum to swell, easily bleeding.

Five UGM students under the guidance of drg. Tetiana Hastuti, M.Kes., Ph.D were triggered to make extract gel from breadfruit leaves named as "Believe Gel" to treat gingivitis in diabetes patients. They are Wida Ningrum Putri Utomo, Chintia Arifa Priyanti, Ryadhiljannah, and Dhiyaul Muslimah from Dentistry study programme, and Esti Yunita from Pharmacy study programme.

Wida Ningrum said gingivitis in patients of diabetes healed longer than in people that have no diabetes. Unfortunately, treatment of diabetes in people with diabetes and without diabetes is the same, which is eliminating the local factor by cleaning the carries.

"This method is still inadequate. During this time breadfruit leaves are only used by Indonesian people to cure hypertension, liver cirrhosis and diabetes. Actually, many other potentials are yet to be found for dentistry purposes," she said at Faculty of Dentistry on Tuesday (4/7).

According to Wida, breadfruit leaves contain useful compounds, such as flavonoid. Flavonoid is a natural component that has anti-inflammation activities in human.

The breadleaves fruit is first extracted into gel based on CMC-Na with 20 percent concentrate. To test the efficacy of the extract gel, the students team made research using wistar Sprague dawley rats.

"The rat is induced with diabetes using Streptozotocin (STZ). STZ is a substance that can raise the rat's sugar level in the blood. The rat experiences diabetes when the level is  $>200$  mg/dL", she said. Afterwards, said Wida, the rat is induced in the gums between the front teeth of the lower jaw for 7 days. After experiencing inflammation, the gum is swabbed with the breadfruit leaves extract gel while the control group is given the gel without active substances twice a day.

"Then, the gum is taken to make histological and cytological prepares. Observation is done on the 0, 1, 3, 5 and 7 days. Observation and count under the microscope showed the number of inflammatory cells in gum tissues of the rat group under treatment is lower than in the control group. In terms of maturation index and maturaton of epithelial cells, the epithelial maturation index in treatment group is moving towards normal,"he said.

Ryadhiljannah added their observation showed that the extract gel can accelerate the healing process of gingivitis. The gel can suppress inflammatory activities in gingivitis.

"The results showed that breadfruit leaves can be the reference for gingivitis in patients with diabetes," said Rya.

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