

# Toothpaste to Bleach Teeth and Prevent Microbial Growth in Mouth

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Oral health is a health issue that has not been given much attention by Indonesian citizens. Basic Health Research Data in 2013 showed that as many as 25.9% of Indonesia's population still has oral health problems.

Some oral health cases such as cavities and tooth discoloration arise due to low awareness of the public to maintain oral hygiene. The growth of microbes in the oral cavity triggers demineralization of teeth that erodes tooth enamel. The process initiates and affects the color of the teeth.

This prompted Dentistry UGM students - Rahayu Widiastuti, Tri Wanudyawati, Faiq Azhar, and Pharmacy students, Thoriq Ziyad and Akbar Eka Nugraha - to create a formula that contains compounds that can inhibit the growth of microbes in the oral cavity. It could also maintain oral health and whiten the teeth.

Rahayu said that so far there have been many toothpaste products in the market that have a composition to address health and oral cavity problems. However, there is no product that has a composition that serves to inhibit or kill microbes, such as *Streptococcus mutans*, in the oral cavity.



"Therefore, we tested compound that has potential to be an alternative antibacterial and whitening teeth for toothpaste," Rahayu said, Wednesday (15/6).

The toothpaste was named Dentrifice Zeolite and Strawberry or DENZIORRY. The compounds used for anti-bacterial alternative is crystal polymer of alumino silicate mineral called zeolite which is widely available.

In making of the teeth whitening, they use ellagitannin acid and malic acid obtained from the extraction of strawberries. Ellagitanin acid will react to produce free radicals H<sup>+</sup>. These radicals can disrupt the unsaturated structure on the enamel, the enamel becomes saturated structure, so that it results on lighter color.

Besides, the acid contained in a strawberry would be a big contributor for teeth whitening since acid can erode tooth enamel surface.

"Cu-Zeolite and strawberry extract are used as an active ingredient formula to make DENZIORRY toothpaste," she explained.

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