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### Beneficial bacteria in chewing gum may ward off tooth decay

By Kathy Jones

Aug 21, 2006, 16:11

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21 Aug, (foodconsumer.org) - A chewing gum containing friendly bacteria that fight harmful bacteria, is in the developmental process by German chemical company, BASF. This gum contains Lactobacillus anti-caries, a bacteria that can suppress other bacteria which cause tooth decay and hence cavities.

Streptococcus mutans is the bacterium that causes dental caries or tooth decay. This bacteria works away on the enamel of the tooth and produces acids, which dissolve the enamel. This process weakens the tooth and hence it is vulnerable to decay and cavities. Lactobacillus anti-caries fights with S mutans and decreases the level of the tooth decay-causing bacteria.

L anti-caries causes S mutans to clump together and thus prevents it from attacking the enamel of the tooth to cause caries. "With Lactobacillus anti-caries we have found an antagonist which effectively binds to the caries germs and prevents them adhering to the surface of the teeth", said Dr. Andreas Reindl, Project Leader at BASF Future Business.

In order to reduce the risk of tooth decay it is vital that the number of harmful bacteria in the oral cavity register a decrease, Reindl said, adding that L anti-caries makes these caries-inducing bacteria clump together into larger agglomerates. These can easily be rinsed out of the mouth and will not damage teeth.

"The effectiveness has been demonstrated and the first oral hygiene products containing probiotic lactobacilli are scheduled to appear in 2007", Reindl added in the report published in the latest issue of the journal Chemistry & Industry.

The project to use lactic acid bacteria to make oral care products is jointly undertaken by BASF Future Business GmbH, Ludwigshafen and OrganoBalance GmbH, Berlin. The lactic acid bacteria (lactobacilli) used in the tooth decay-preventing gum are taken from the vast culture stock available with OrganoBalance.

Stefan Marcinowski, executive director of research at BASF confirmed that a lactobacillus product was due out in 2007, but did not explain if it was a chewing gum, a mouthwash or toothpaste. He only revealed that the chewing gum 'has been tested on large numbers of people and demonstrated the ability to significantly reduce bacterial levels.'

Researchers working on the chewing gum claim that it can reduce the amount of S mutans bacteria in the mouth by as much as fifty times. "The bacterium is well established and safe and demonstrated the ability to significantly reduce bacterial levels in a large number of people," Marcinowski said.

The news of a chewing gum that prevents tooth decay will be welcome among people whose teeth are more prone to decay. But dentists say that the best way of avoiding cavities is to brush regularly and keep your teeth clean.

In fact Dr Gordon Watkins, a member of the British Dental Association's health and science committee, said that the current announcement must not induce a lull of comfort in consumers. "It's not a substitute for brushing the teeth, because this removes the plaque that contains a whole range of bacteria that causes gum disease and bad breath," he warned.

"The best way to minimize tooth decay is to reduce consumption of sugars; strengthen the teeth through the use of fluoride; and brush teeth to remove dental plaque." University of Glasgow Dental School expert Dr Peter Carrotte agreed. Regular visits to a dentist are a must, he explained.

"Anything that prevents tooth decay is a good idea. (But) Oral hygiene is essential and a chewing gum is not a replacement for brushing teeth," he said. "Some people need to go to the dentist more often than others but everyone should have an annual check, not only for tooth decay but also for mouth cancer and other diseases."

Tooth decay affects about 5 billion people worldwide. Consuming refined foods that stick to the teeth, increased sugar intake, soft drinks and poor oral hygiene are the main reasons for the increased incidence of tooth decay. Although the introduction of fluoride has reduced the incidence of caries in developed countries, developing countries continue to suffer.

Chewing gums that claim to fight tooth decay are not a new product. Existing gums use xylitol to prevent bacteria from sticking to teeth. But this is the first time that naturally occurring bacteria are being used to fight tooth decay causing bacteria.

Lactic acid bacteria are present in yoghurt and buttermilk and are responsible for the sour taste of these foods. Consumption of yoghurt or other fermented dairy foods, as well as probiotic supplements, has been shown to have a wide range of beneficial effects on human health. Research has demonstrated that they reduce blood pressure and even cancer.

However for the first time, the bacteria are being used in personal care and oral care products. BASF is also looking into producing a deodorant based on *L. aladoris*, which can inhibit odor-producing bacteria in the armpit. BASF said that there is a lot of potential for *Lactobacillus* strains in face and body creams, medicinal ointments and plasters.

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