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## Tea fights bad breath

Compounds found in tea can stop the growth of bacteria that cause bad breath, according to researchers at the University of Illinois at Chicago.

Polyphenols, chemical components of tea, prevent both the growth of bacteria responsible for bad breath and the bacteria's production of malodorous compounds, the UIC researchers found. The findings were presented today at the annual meeting of the American Society for Microbiology in Washington, D.C. by Christine Wu, professor of periodontics and associate dean for research at the UIC College of Dentistry, and research associate Min Zhu.

Bad breath -- or halitosis -- afflicts a large portion of the population. It is caused by foul-smelling volatile sulfur compounds, like hydrogen sulfide, produced by anaerobic bacteria that thrive in environments lacking oxygen, such as the back of the tongue and deep gum pockets.

In the laboratory study, Wu and Zhu incubated tea polyphenols with three species of bacteria associated with bad breath for 48 hours.

At concentrations ranging from 16 to 250 micrograms per milliliter, the polyphenols inhibited growth of the oral bacteria.

At even lower concentrations -- from 2.5 to 25 micrograms per milliliter -- the polyphenols hindered the enzyme that catalyzes the formation of hydrogen sulfide, cutting its production by 30 percent.

Wu said the present study complements earlier research in her laboratory showing that black tea suppresses the growth of bacteria in dental plaque and that rinsing with black tea reduces plaque formation and the production of acids that cause tooth decay.

"Besides inhibiting the growth of pathogens in the mouth, black tea and its polyphenols may benefit human oral health by suppressing the bad-smelling compounds that these pathogens produce," Wu said.

The polyphenols found in tea include chemicals called catechins and theaflavins. Catechins are found in both green and black teas, while theaflavins are found predominantly in black tea.

Black tea, an aqueous infusion of dried leaves of the *Camellia sinensis* plant, is the most popular beverage worldwide, second only to water. Per capita consumption averages four fluid ounces per day.

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