



Shell Beach, CA

Nanoparticles Used to Break Up Plaque and Prevent Cavities

Source: [SciencyDaily.com](http://www.sciencedaily.com)

The bacteria that live in dental plaque and contribute to tooth decay often resist traditional antimicrobial treatment, as they can “hide” within a sticky biofilm matrix, a glue-like polymer scaffold.

The University of Pennsylvania researchers developed a strategy that takes advantage of the pH-sensitive and enzyme-like properties of iron-containing nanoparticles. The nanoparticles were used to catalyze the activity of hydrogen peroxide, a commonly used natural antiseptic. The activated hydrogen peroxide produced free radicals that were able to simultaneously degrade the biofilm matrix and kill the bacteria within. This significantly reduced plaque and prevented the tooth decay, or cavities, in an animal model.

The researchers observed no adverse effects on the gum

or oral soft tissues from the treatment. According to Hyun (Michel) Koo, a professor in the Penn School of Dental Medicine’s Department of Orthodontics and the senior author of the study, “Adding nanoparticles increased the efficiency of bacterial killing more than 5,000-fold.”

Additionally, the components are relatively inexpensive. According to researchers, the amount needed would be approximately 5 milligrams amounting to a cost of cents per dose.

Link to full article: <https://www.sciencedaily.com/releases/2016/07/160726131658.htm>

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