



# CHX but without stains? One substance may hold the solution

**Chlorhexidine digluconate (CHX) has been the go-to antiseptic in oral health for decades. It is considered the gold standard in antiseptic mouthrinses, but its use comes with side effects. Staining, especially of aesthetic restorations, is a common problem. Researchers from the University of Sydney have recently obtained promising results for an organic compound that could reduce staining during treatment: Citrox.**

CHX exhibits broad antimicrobial properties and has been used as an oral antiseptic since the 1950s, but its use is increasingly called into question due to several side effects. These include Types I and IV hypersensitivity, antimicrobial resistance and taste disturbance. Staining too is a common side effect of CHX treatment, both of the natural dentition and of aesthetic restorative materials such as composite resins, zirconia and feldspathic ceramics. Several anti-staining systems have been developed, but their success has been limited. Recently, researchers from the University of Sydney have obtained promising results with a CHX formulation supplemented with Citrox.

## The study

For the in vitro study, the researchers compared a 0.2% CHX mouthrinse with two mouthwashes containing Citrox. The Citrox mouthrinses used were Curaprox's Perio plus forte (0.20% CHX) and Perio plus regenerate (0.09% CHX). The researchers immersed 60 disc-shaped specimens of nano-filled and micro-hybrid composites, as well as of a glass ionomer cement, in either Citrox-containing or purely CHX-based mouthrinses. After 28 days, they compared the restorative materials regarding their

differences in colour and translucency using a clinical spectrophotometer.

The researchers found that the Perio plus mouthrinses caused less colour difference compared to baseline readings than the CHX-only mouthrinse. Differences in translucency were material dependent and showed no predictable effect regarding the mouthrinse used.

## What is Citrox?

So what is Citrox? Citrox is a mix of nine bioflavonoids, naturally occurring plant compounds that hold anti-inflammatory, immunomodulatory, antioxidative and antimutagenic properties and may increase vascular resistance and promote wound healing. The most common sources of bioflavonoids are fruits, vegetables, nuts, seeds and spices. Citrox is sourced from the piths and pulp of bitter oranges.

The researchers' findings hold great potential for the use of Citrox for reducing CHX staining. This and other properties make Citrox an effective ingredient in antiseptic mouthrinses. At concentrations of between 1% and 2% in Perio plus, Citrox has been proved to inhibit the growth of the majority

of oral pathogens. Still, its use in oral health is not yet established. Perio plus mouthrinses are among the few oral care products to make use of the potential bioflavonoids hold for our oral health."

## Less CHX means less side effects

One study on Perio plus has already shown that a combination of organic antimicrobials and CHX is more effective than using CHX alone. Supplementing CHX with Citrox and other organic antimicrobials would allow dental professionals to reduce the concentrations of CHX more quickly during treatment in order to avoid side effects. Curaprox's Perio plus range may lead the way for organically sourced mouthrinses away from high doses of CHX and towards maintaining and restoring a healthy, balanced oral microbiome.

To apply for a Perio plus sample, scan the QR code below:

The study by  
Divnic-Resnik et al. can  
be accessed here:

