SCIENTIFIC MEDICAL CLINICAL AFFAIRS

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# Research Compact

**Tags** octenisept® , SARS-CoV-2, Oral cavity

**Title**

## Comparison of in vitro-efficacy of different mouthwash solutions targeting SARS-CoV-2 based on the European Standard EN 14476

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**Aim of the study**

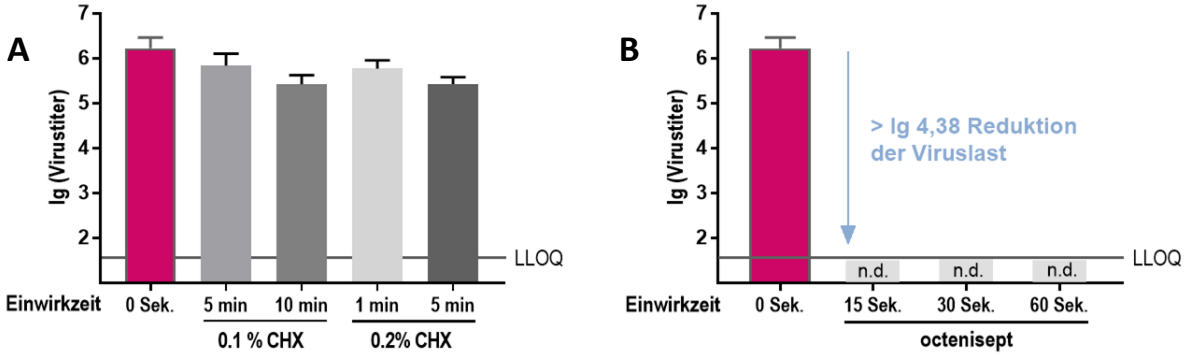
The COVID-19 causing virus SARS-CoV-2 is mainly spread through saliva droplets and aerosols. It is suggested that the use of antimicrobial mouthwashes as a preventive measure in dental practice and other diagnostics in the oral cavity could reduce the viral load in the saliva and therefore decrease the number of transmission events. Recent publications (e.g. Meister et al, 2020) confirmed this assumption. However, in-vitro data strictly according to the European Standard EN 14476 are urgently needed, in which reduction of at least four decimal logarithms (log10) of viral titer is requested to state efficacy.

**Methods**

The antiviral efficacy against SARS-CoV-2 of three commercially available mouthwashes based on 0.1% Chlorhexidine, 0.2% Chlorhexidine and 0.1% Octenidine/2% Phenoxyethanol was assessed according to EN 14476. The tests were carried out under conditions of low organic soiling (0.3% BSA) in concentrations of 20 to 80% and contact times ranging from 15 seconds up to ten minutes. The virus titer was determined through reinfection and titration of Vero E6 cells.

**Results**

The mouthwash based on 0.1% Octenidine/2% Phenoxyethanol effectively reduced the viral titer by more than 99.99% (≥ 4,38 $log_{10}$) after only 15 seconds contact time, independent of the used concentration.
In contrast, both mouthwashes based on Chlorhexidine were only able to reduce the viral titer by less than 1-log, even after prolonged contact times of 5 and 10 minutes.




In vitro virucidal efficacy of tested mouthwashes against SARS-CoV-2 according to EN 14476. SARS-CoV-2 was incubated with medium (0 sec) or with mouthwash for various periods of time (15 sec to 10 min). The cytotoxic effect was monitored using uninfected cells and the lower limit of quantification (LLOQ) was thus defined. The virus titer was determined using the Tissue Culture Infectious Dose (TCID50). In the case of octenidine / phenoxyethanol (B), a large volume plating test was also carried out. No further cytotoxic effects were observed. n.d. = not detectable, modified according to BioRxiv, Steinhauer et al., 2020.

**Conclusion**

**The combination of 0.1% Octenidine/2% Phenoxyethanol (trade name: octenisept®) showed fast onset efficacy against SARS-CoV-2 virus in-vitro.**
**In an indirect comparison of two studies, the combination of octenidine/phenoxyethanol proved to be more effective against SARS-CoV-2 than a mouthwash with 0.1% octenidine (Meister et al. 2020). These encouraging results for octenisept® should be confirmed in upcoming clinical trials.**