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Microbiology Research Report
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Cavex ImpreSafe Disinfection Study

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Purpose:

The project investigated the antimicrobial effectiveness of ***Cavex ImpreSafe*** on clinical impressions.

Materials and Methods:

The impression materials used in this study were alginate (***Cavex ColorChange***, *Cavex Holland B.V.*) and addition silicone (***Flexitime***, *Heraeus*). Fresh ***Cavex ImpreSafe*** disinfectant was prepared and used from concentrate according to manufacturer's directions. Groups of five impressions each were taken on patient volunteers for each component of the study.

Controls:

Alginate and addition silicone impressions were immersed in sterile Tripticase Soy broth for 15 seconds. This treatment was intended to rinse off salivary bacteria from the impression material. This group served as positive experimental controls. 1.0 ml aliquots of saliva-contaminated broth from each impression were plated on Tripticase Soy Agar and incubated at 37° C for 24 hours. Microbial growth on each plate was evaluated by counting bacterial colonies.

Alginate and addition silicone impressions taken on other patients were rinsed with distilled water for 15 seconds prior to immersion in Tripticase Soy both. This procedure was designed to provide baseline data on the ability of a basic cleaning procedure to reduce the microbial load on clinical impressions. 1.0 ml aliquots from these preparations cultured on Tripticase Soy Agar plates and processed as above.

Salivary Antimicrobial Investigation with Cavex ImpreSafe Disinfectant:

Fresh ***Cavex ImpreSafe*** disinfectant solution was prepared from concentrate according to manufacturer's directions. Groups of alginate and addition silicone impressions (5 each) were completely immersed in a dilution of the disinfectant for 3 minutes, with initial care taken to ensure air were completely removed from all material cavities.

Disinfected impressions were rinsed with distilled water for 15 seconds before a second immersion in Tripticase Soy broth for an additional 15 seconds. 1.0 ml aliquots of exposed broth were then placed on Tripticase Soy agar plates and incubated at 37° C for 24 hours. In vitro microbial growth was assessed by counting bacterial colonies.

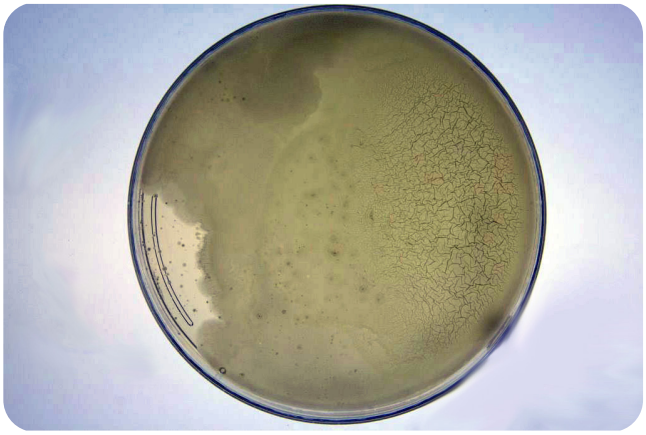

Figure 1: Alginate control

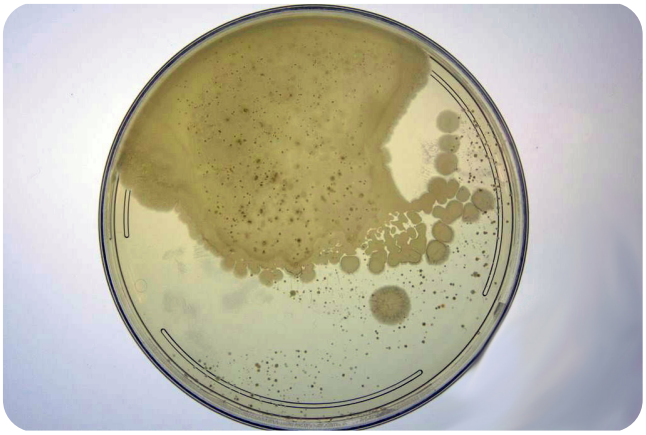

Figure 1a: Silicone control

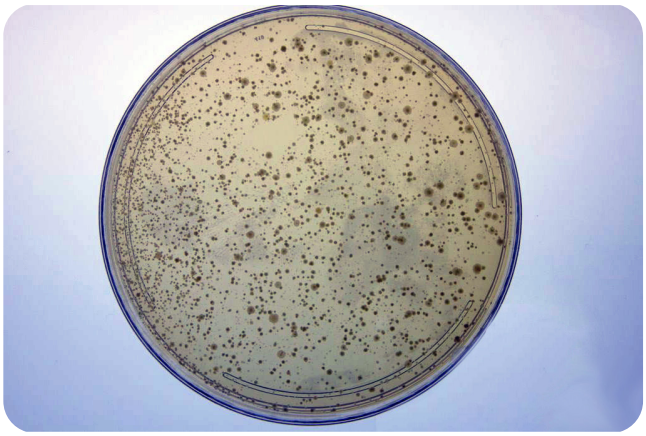

Figure 2: Alginate distilled water

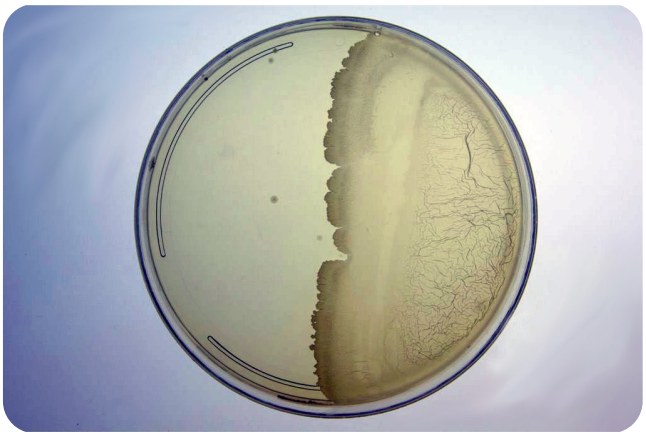

Figure 2a: Silicone distilled water

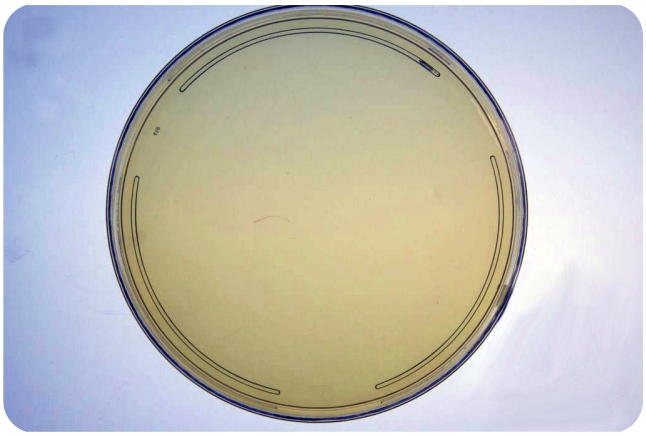

Figure 3: Alginate ***Cavex ImpreSafe***

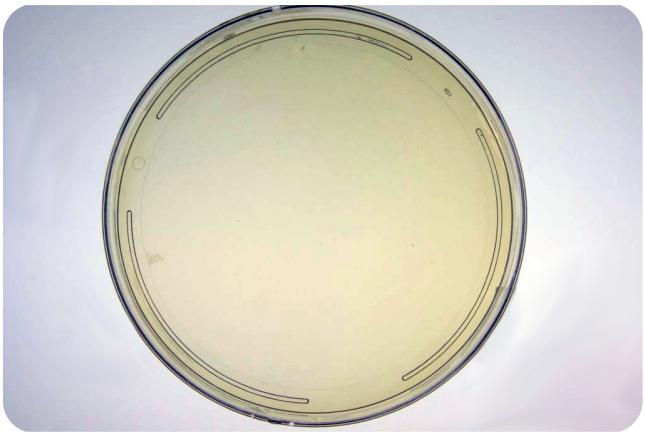

Figure 3a: Silicone ***Cavex ImpreSafe***

Results:

Cultures taken from both the alginate and addition silicone impression samples resulted in the growth of numerous bacterial colonies, with confluent growth noted in most instances (Tables 1 and 2). In contrast, immersion of impressions in ***Cavex ImpreSafe*** disinfectant for 3 minutes before culturing killed virtually all of the cultivable bacteria (Table 3). Most cultures showed no colonies.

Table 1. Bacterial Growth on Salivary Control Impressions

Alginate	Colony Forming Units (CFU)	
	Plate #1	Plate #2
Samples #1-5	TNTC*	TNTC
Addition Silicone	**Colony Forming Units (CFU)**	
	Plate #1	Plate #2
Samples #1-5	TNTC*	TNTC

*TNTC: Too Numerous to Count

Table 2. Bacterial Growth on Distilled Water Rinse Control Impressions

Alginate	Colony Forming Units (CFU)	
	Plate #1	Plate #2
Samples #1, 3-5	TNTC*	TNTC
Sample #2	~1410	~1510
Addition Silicone	**Colony Forming Units (CFU)**	
	Plate #1	Plate #2
Sample #1	> 500	TNTC
Samples #2-5	TNTC*	TNTC

*TNTC: Too Numerous to Count

Table 3. Bacterial Growth on *Cavex ImpreSafe*-treated Impressions

Alginate	Colony Forming Units (CFU)	
	Plate #1	Plate #2
Samples #1-5	1.2	0.8
Addition Silicone	**Colony Forming Units (CFU)**	
	Plate #1	Plate #2
Samples #1-5	0.0	0.2

Conclusion:

Immersion of clinical impressions in ***Cavex ImpreSafe*** for 3 minutes was found to destroy the overwhelming majority of salivary bacteria, as demonstrated by culture on Tryptic Soy agar at 37 C.