

*Supplementary Materials*

# Propolis as a Cariostatic Agent in Lozenges and Impact of Storage Conditions on the Stability of Propolis

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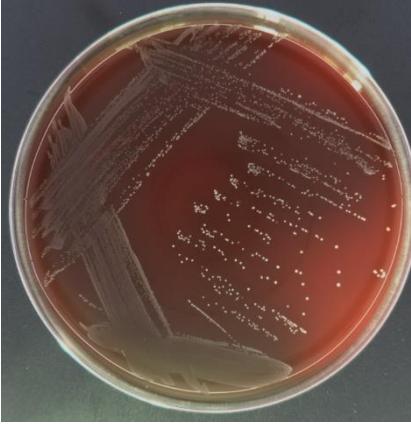
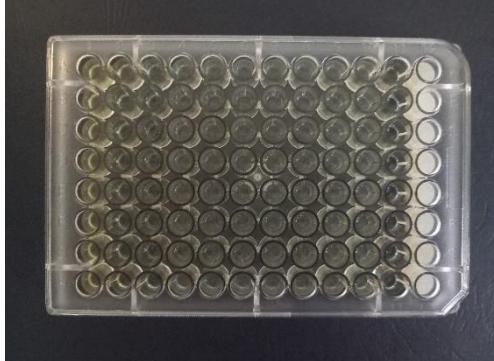
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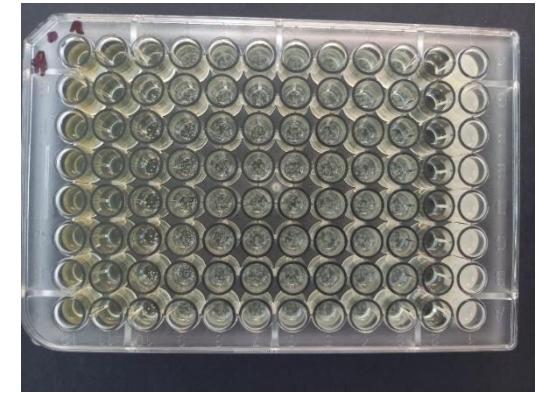
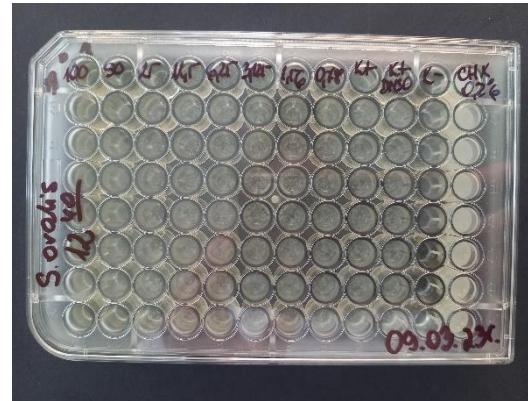
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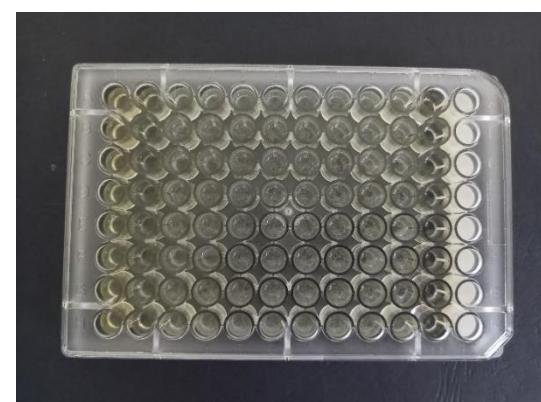
**Table S1.** Photos presenting 96-well plates and plates with broth made to determine the minimum bactericidal concentration for EEP.

Bacteria	Photos of the plate presenting strains bacteria tested	Photos of the 96-well microtiter plates used to determination of the Minimum Inhibitory Concentration and Minimum Bactericidal Concentration of EEP
<i>Streptococcus mitis</i>	 A petri dish containing a red agar medium with several small, white bacterial colonies. A metal inoculation loop is visible on the left side of the dish.	 A 96-well microtiter plate with handwritten labels in red ink. The top row contains the text "100% EEP 10% EEP 5% EEP 1% EEP 0.5% EEP 0.25% EEP". The label "S. mitis" is written vertically on the left side. The bottom row has handwritten numbers "10-55" and "10-58".  A second 96-well microtiter plate showing a grid of small, dark spots or clear wells, indicating the results of the bacterial assay.
<i>Streptococcus mutans</i>	 A petri dish containing a red agar medium with many small, white bacterial colonies. A metal inoculation loop is visible on the left side of the dish.	 A 96-well microtiter plate with handwritten labels in red ink. The top row contains the text "100% EEP 10% EEP 5% EEP 1% EEP 0.5% EEP 0.25% EEP". The label "S. mutans" is written vertically on the left side. The bottom row has handwritten numbers "10-55" and "10-58".  A second 96-well microtiter plate showing a grid of small, dark spots or clear wells, indicating the results of the bacterial assay.

*Streptococcus oralis*



*Streptococcus  
salivarius*



**Table S2.** Results of main effect of ANOVA analysis for MIC of tested EEP concentrations.

Effect	Multivariate Tests of Significance			Effect df	Error df	p			
	Sigma-restricted parameterization								
	Effective hypothesis decomposition								
Test	Value	F							
Intercept	Wilks	0,001428	14160,06	4	81,0000	0,00			
Formulation	Wilks	0,000079	76,57	44	311,8403	0,00			

Results marked in red are statistically significant at the level  $p \leq 0.05$ .

**Table S3.** Results of main effect of ANOVA analysis for MIC values of tested lozenges.

Effect	Multivariate Tests of Significance0			Effect df	Error df	p			
	Sigma-restricted parameterization								
	Effective hypothesis decomposition								
Test	Value	F							
Intercept	Wilks	0,004078	4762,232	4	78,0000	0,00			
Formulation	Wilks	0,003115	48,173	24	273,3195	0,00			

\* Results marked in red are statistically significant at the level  $p \leq 0.05$ .

**Table S4.** Results of Fisher's LSD Test for *S. mitis* MIC values of tested lozenges.

Cell No.	Formulation	LSD test; variable <i>S. mitis</i>						
		Probabilities for Post Hoc Tests Error: Between MS = .00048. df = 49.000						
		{1}	{2}	{3}	{4}	{5}	{6}	{7}
1	PT	.29812	.28412	.27088	.35012	.04212	.06425	.04037
2	PT/HT	0.206348		0.231311	0.000000	0.000000	0.000000	0.000000
3	PT/UV30m	0.016107	0.231311		0.000000	0.000000	0.000000	0.000000
4	PT/UV60m	0.000018	0.000000	0.000000		0.000000	0.000000	0.000000
5	Control (saliva & bacteria)	0.000000	0.000000	0.000000	0.000000		0.048454	0.873476
6	Control (tablets WP & bacteria)	0.000000	0.000000	0.000000	0.000000	0.048454		0.033782
7	Control (saliva)	0.000000	0.000000	0.000000	0.000000	0.873476	0.033782	

Results marked in red are statistically significant at the level  $p \leq 0.05$ .

**Table S5.** Results of Fisher's LSD Test for *S. mutans* MIC values of tested lozenges.

Cell No.	Formulation	LSD test; variable <i>S. mutans</i>						
		Probabilities for Post Hoc Tests Error: Between MS = .00267. df = 49.000						
		{1}	{2}	{3}	{4}	{5}	{6}	{7}
1	PT	1.3363	1.1121	1.0305	1.1420	.05487	.08238	.05237
2	PT/HT	0.000000		0.002725	0.253465	0.000000	0.000000	0.000000
3	PT/UV30m	0.000000	0.002725		0.000078	0.000000	0.000000	0.000000
4	PT/UV60m	0.000000	0.253465	0.000078		0.000000	0.000000	0.000000
5	Control (saliva & bacteria)	0.000000	0.000000	0.000000	0.000000		0.292681	0.923359
6	Control (tablets WP & bacteria)	0.000000	0.000000	0.000000	0.000000	0.292681		0.251511
7	Control (saliva)	0.000000	0.000000	0.000000	0.000000	0.923359	0.251511	

Results marked in red are statistically significant at the level  $p \leq 0.05$ .

**Table S6.** Results of Fisher's LSD Test for *S. oralis* MIC values of tested lozenges.

Cell No.	Formulation	LSD test; variable <i>S. oralis</i>						
		Probabilities for Post Hoc Tests Error: Between MS = .00116. df = 49.000						
		{1}	{2}	{3}	{4}	{5}	{6}	{7}
1	PT	1.2576	1.0605	.98200	1.1495	.05475	.11000	.05275
2	PT/HT		0.000000		0.000029	0.000004	0.000000	0.000000
3	PT/UV30m		0.000000	0.000029		0.000000	0.000000	0.000000
4	PT/UV60m		0.000000	0.000004	0.000000		0.000000	0.000000
5	Control (saliva & bacteria)		0.000000	0.000000	0.000000	0.000000	0.002121	0.906979
6	Control (tablets WP & bacteria)		0.000000	0.000000	0.000000	0.000000	0.002121	0.001507
7	Control (saliva)		0.000000	0.000000	0.000000	0.000000	0.906979	0.001507

Results marked in red are statistically significant at the level  $p \leq 0.05$ .

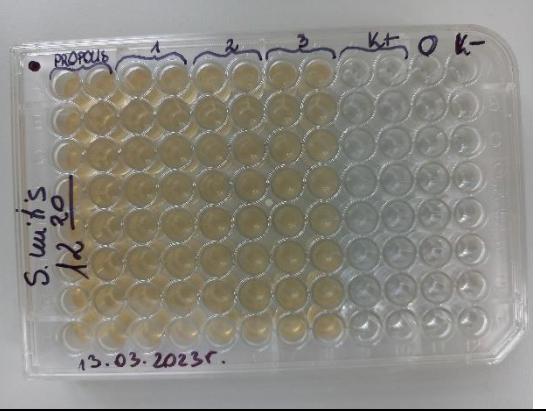
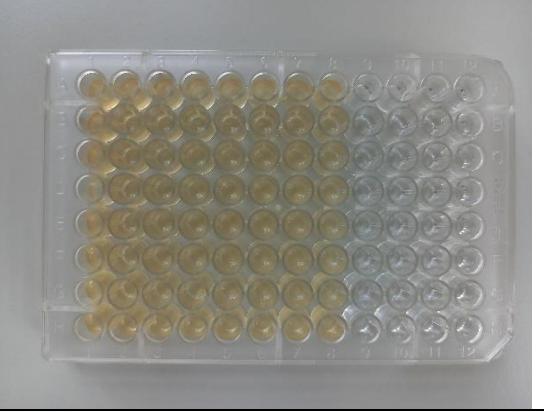
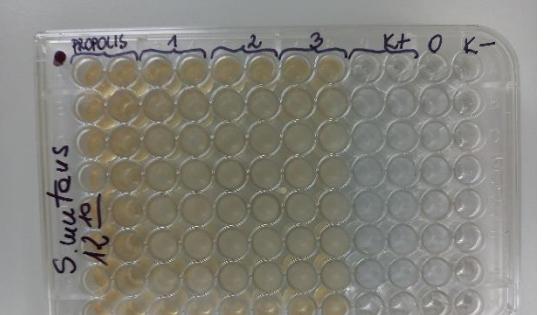
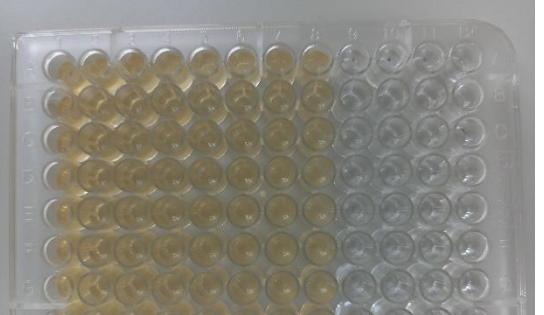
**Table S7.** Results of Fisher's LSD Test for *S. salivarius* MIC values of tested lozenges.

Cell No.	Formulation	LSD test; variable <i>S. salivarius</i>						
		Probabilities for Post Hoc Tests Error: Between MS = .00583. df = 49.000						
		{1}	{2}	{3}	{4}	{5}	{6}	{7}
1	PT	1.3731	1.1195	1.0253	1.1885	.05262	.09975	.05237
2	PT/HT	0.000000		0.017122	0.076924	0.000000	0.000000	0.000000
3	PT/UV30m	0.000000	0.017122		0.000088	0.000000	0.000000	0.000000
4	PT/UV60m	0.000014	0.076924	0.000088		0.000000	0.000000	0.000000
5	Control (saliva & bacteria)	0.000000	0.000000	0.000000	0.000000		0.223073	0.994803
6	Control (tablets WP & bacteria)	0.000000	0.000000	0.000000	0.000000	0.223073		0.220665
7	Control (saliva)	0.000000	0.000000	0.000000	0.000000	0.994803	0.220665	

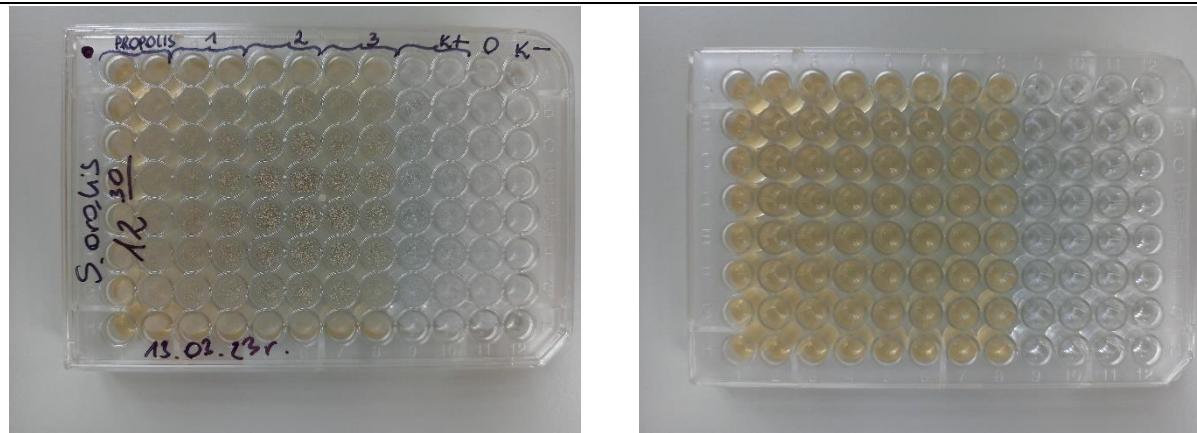
Results marked in red are statistically significant at the level  $p \leq 0.05$ .

**Table S8.** Photos presenting 96-well plates and plates with broth made to determine the minimum bactericidal concentration for prepared lozenges with EEP.

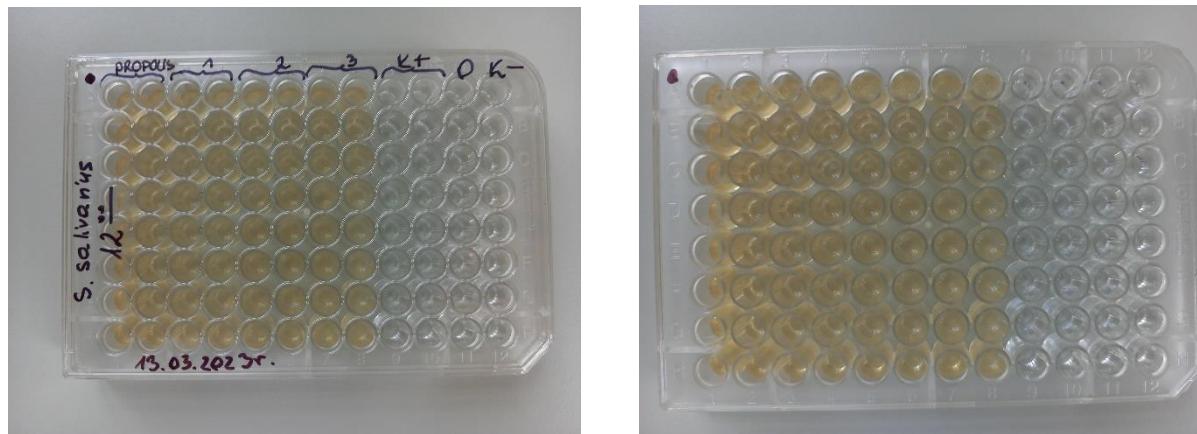
**Photos of the 96-well microtiter plates used to determination of the Minimum Inhibitory Concentration and Minimum Bactericidal Concentration of EEP**

<p><i>Streptococcus mitis</i></p>  <p>Propolis 1 2 3 K+ O K- S. mitis 1/2 2/0 13.03.2023.</p>	
<p><i>Streptococcus mutans</i></p>  <p>Propolis 1 2 3 K+ O K- S. mutans 1/2 2/0 13.03.2023.</p>	

*Streptococcus oralis*



*Streptococcus salivarius*



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