



Introduction

Early childhood caries (ECC) is a common infectious disease in children worldwide, particularly affecting those from low socio-economic backgrounds and racial/ethnic minority groups. The main bacteria associated with ECC are *Streptococcus mutans* and *Lactobacillus acidophilus*.^{1,2}



Fluoride varnish is widely used to prevent ECC, with 5% sodium fluoride being a commercially available option. Another effective and safe agent for treating ECC is silver diamine fluoride (SDF), which also has an antibacterial effect on oral biofilms and can increase the microhardness of dentin lesions. However, it is not clear whether SDF can inhibit the growth of *L. acidophilus*. Therefore, the purpose of this study is to investigate the inhibitory effect of SDF on *L. acidophilus*.^{3,4}



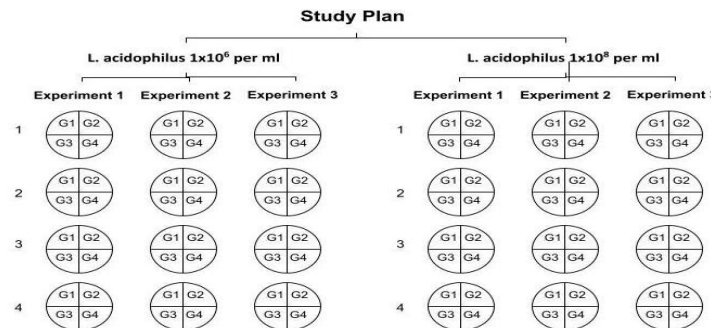
Aim Of The Study

To determine the possible inhibitory effect of SDF on the growth of *L. acidophilus* in comparison to fluoride varnish, chlorhexidine (positive control group), and phosphate buffered saline (negative control).

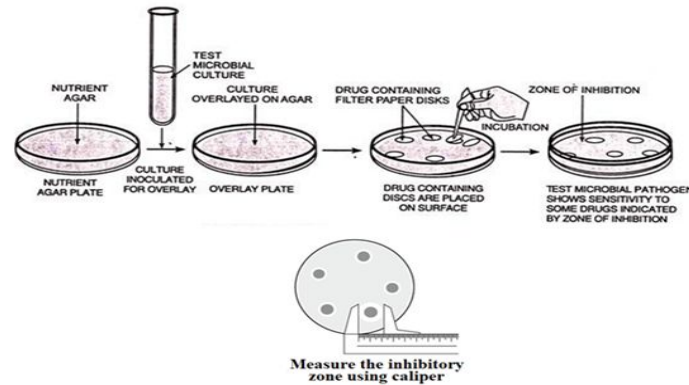
Materials & Methodology

The inhibitory effect was evaluated and compared at different concentrations of *L. acidophilus* (ATCC 416) cultured on MRS agar medium using the disc diffusion assay and minimal inhibitory concentration (MIC) method. The results were analyzed using a randomized block analysis of variance test to test the null hypothesis. For the analysis of MIC results, the concentrations were expressed as (wt/vol%) of the respective test reagents, and the results were presented in tables and graphs.

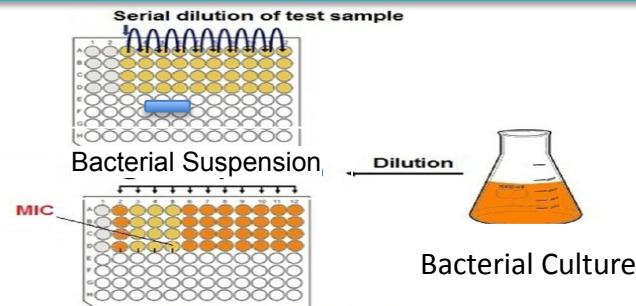
Group 1	SDF (38%)	Experimental Group
Group 2	Fluoride Varnish (5%)	Experimental Group
Group 3	Chlorhexidine (0.12%)	Positive Control Group
Group 4	PBS	Negative Control Group



Conventional Disk Diffusion Assay

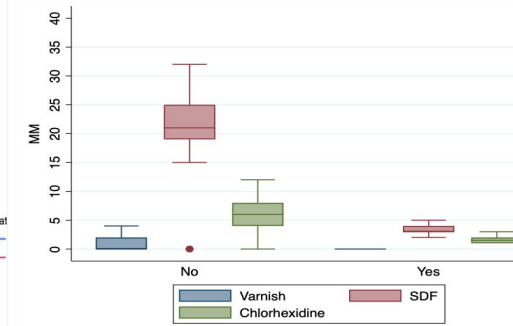
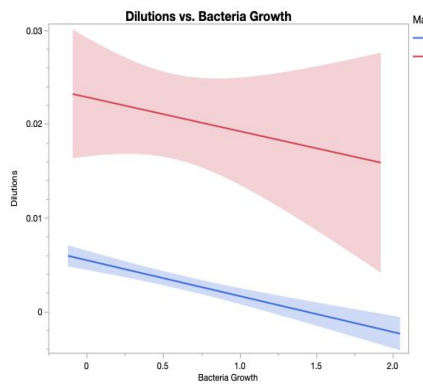


Minimum Inhibitory Concentration Assay



Results

In the disk diffusion assay method, **SDF demonstrated statistically significant superior inhibition of *L. acidophilus*** when compared to the other agents.



In the MIC method, chlorhexidine exhibited a significant antibacterial effect compared to SDF, as shown in the graph on the left.

Conclusion

This de novo study demonstrated, for the first time, the inhibitory effect of SDF on the growth of *L. acidophilus*. This study proves that SDF possesses significant antibacterial properties that can arrest ECC associated with *L. acidophilus*.

Acknowledgements

This study did not require IRB review or approval because its procedures did not fall within the IRB's jurisdiction based on 45 CFR 46.102. Therefore, the IRB classified this study as "research outside the purview of the IRB" for IRB purposes. The study was funded by an NSU HPD grant with the number 334551.

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