



Journal of Prosthodontics Dentistry
An Official Publication of Bureau for Health & Education Status Upliftment
(Constitutionally Entitled as Health-Education, Bureau)

**Effect of Addition of Nanoparticles on Physical & Biological properties of
tissue conditioner: An in vitro study**

*Dr. Jagjot Singh Saluja¹, Dr. Swatantra Agarwal², Dr. Romil Singhal³, Dr. Kanchan Chaukiyal⁴ &
Dr. Sabeeha Hussain⁵*

¹Post graduate student, Dept. of Prosthodontics Kothiwal Dental College & Research Centre,
Moradabad, U.P. 244001

²Professor & Head, Dept. of Prosthodontics Kothiwal Dental college & Research Centre, Moradabad,
U.P. 244001

³Professor, Dept. of Prosthodontics, Kothiwal Dental college & Research Centre, Moradabad, U.P.
244001

⁴Private practitioner, Moradabad, U.P. 244001

⁵Senior Lecturer, Dept. of Prosthodontics Seema Dental College and Hospital, Rishikesh, Uttarakhand
249203

Email id: serviceheb@gmail.com

ABSTRACT

Purpose: Tissue conditioners are used to treat inflammation and tissue injuries of the oral cavity. However, they provide an ambient environment for the colonization of Candida. Antifungal properties of tissue conditioner containing various nanoparticles with variable results have previously been evaluated, but, viscoelastic properties have not yet been evaluated. This study compares the antifungal and viscoelastic properties of tissue conditioner after addition of silver and zinc oxide nanoparticles in different concentrations.

Materials and Method: A total number of 150 samples were fabricated, 75 samples for each property were divided among 5 groups: Group I (Control), Group II (Viscogel with 0.6wt% silver nanoparticles), Group III (Viscogel with 1.2wt% silver nanoparticles), Group IV (Viscogel with 0.6wt% zinc-oxide nanoparticles) and Group V (Viscogel with 1.2wt% zinc oxide nanoparticles) having 15 samples each.

Antifungal property was assessed using agar punch well method in which the minimum zones of inhibition on culture plates were measured after 24 hours, 7 days and 30 days.

Viscoelasticity was evaluated after 24 hours, 7 days and 30 days using stress relaxation test.

Results:


- Antifungal activity decreased with time from day one to day seven among all groups.
- When viscoelasticity was evaluated, on intergroup comparison, statistically significant difference was found at all time intervals ($p < 0.001$).

Conclusion:

- Highest antifungal activity was seen in Group III, followed by Group II, V, IV and least by control group.
- Viscoelasticity decreased from day one to day thirty among all groups.

Keywords: Antifungal, viscoelasticity, nanoparticles, tissue conditioner.

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Access this Article Online	Quick Response Code: 
Website: http://heb-nic.in/jopd	
Received on 22/01/2022	
Accepted on 02/02/2022 © HEB All rights reserved	