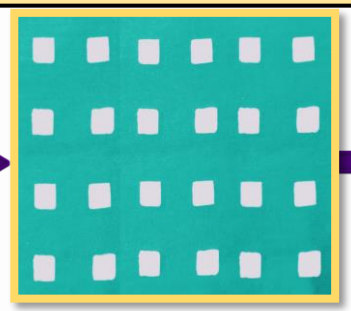
39th IACDE National Conference

'NANO-REINFORCED' GLASS IONOMER CEMENT!

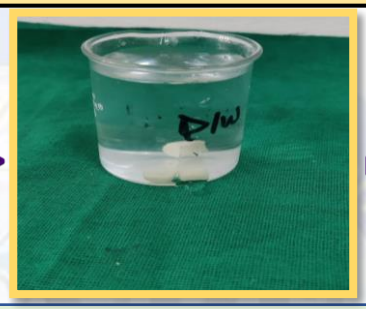
AIM :A comparative evaluation of effect of erosive challenge on microhardness of conventional Glass Ionomer Cement modified with Chitosan and Chicken Egg-Shell Particle: In Vitro Study

Methodology:

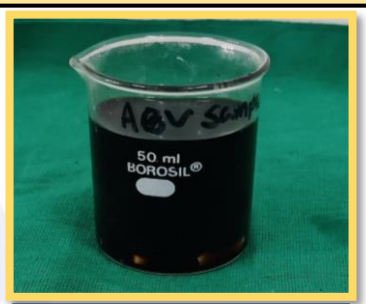


24 Samples

6mm x 3mm



7 days in distilled water

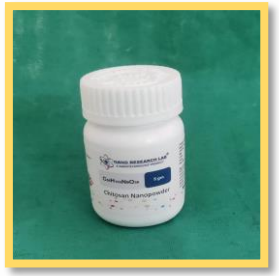


14 days in Vinegar

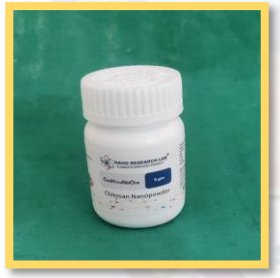
Vickers Microhardness Tester

Materials :

Glass Ionomer Cement



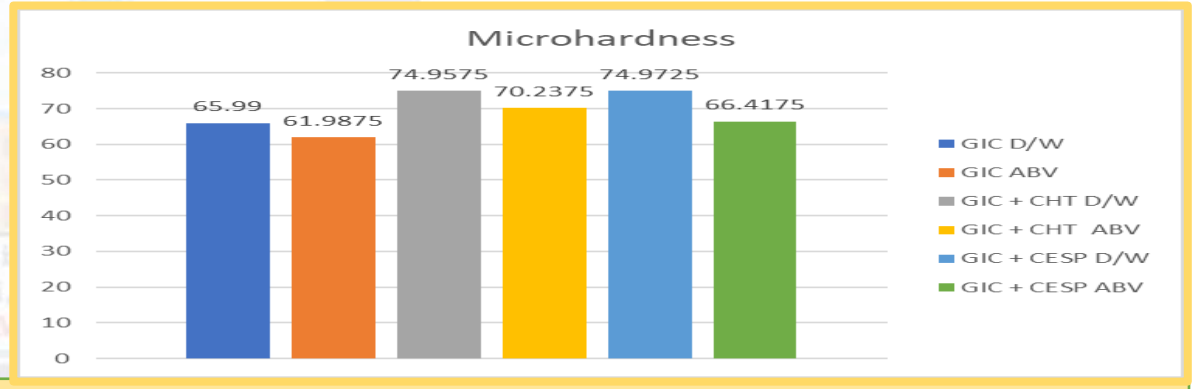
10 % Chitosan Nanoparticles



5% CESP Nanoparticles

Aceto-Balsamic Vinegar

MICROHARDNESS (VHN)



Result : There is a significant difference between all the groups with CESP modified GIC showing the highest mean microhardness(74.9725 VHN) and non modified GIC showing least mean microhardness(65.99).The acid attack decreased the microhardness of all the samples. However ,the Chitosan particles endowed the GIC with the most resistance to acid attack as the decrease in the microhardness is significantly less (70.2375) .While the non modified GIC was the least resistant to acid attack with most reduction in microhardness (61.9875).

Conclusion: 1)The 5% Chicken egg shell nanoparticles significantly increased the microhardness of GIC when compared to the Chitosan modified GIC and the non modified GIC which showed the least values of microhardness.

2) Chitosan modified GIC showed significantly more resistance to decrease in microhardness values even when the samples were exposed to erosive acid challenge for 14 days when compared to CESP modified GIC and the non modified GIC which showed the least values of microhardness.