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Comparative evaluation of microleakage, surface roughness and hardness of three glass ionomer cements – Zirconomer, Fujii IX extra GC and Ketac molar: An *In Vitro* Study

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Objective: To compare and evaluate microleakage, surface roughness and hardness of three glass ionomer cements – Zirconomer, Fujii IX Extra GC and Ketac Molar.

Materials and methods: For microleakage evaluation, 150 extracted human maxillary permanent first premolars were randomly divided into five groups of 30 teeth each. Standardized class V cavity preparation was done on the buccal surface of all the groups except group 1. In group 2, cavity was prepared but left unrestored. Group 3, 4 and 5 were restored with Zirconomer, Fujii IX Extra GC and Ketac Molar respectively. Teeth were themocycled together for 500 cycles. All the samples were placed in 0.5% methylene blue for 24 hrs. Volumetric microleakage evaluation was done using spectrophotometer. For each material 15 samples were prepared, of which 10 samples were polished using Sof Lex discs. Samples were processed for surface roughness evaluation, 5 samples from each group before polishing & 5 samples after polishing. 5 samples from each group were processed for Vicker's hardness test.

Results: All the five groups showed some amount of microleakage. Microleakage value of group 2 was greater followed by group 3, group 4, group 1 and group 5 respectively. Ketac Molar showed lower surface roughness value before & after polishing. Fujii IX Extra GC showed higher hardness followed by Ketac Molar and Zirconomer.

Conclusion: No material was able to completely eliminate microleakage at cervical margin. Ketac Molar showed lower surface roughness before and after polishing. Fujii IX Extra GC showed high hardness among the materials tested.

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