

3rd Euro Congress and Expo on

Dental & Oral Health

June 16-18, 2015 Alicante, Spain

A comparative evaluation of three different root conditioning agents on the surface characteristics of cemental surface- SEM study

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The revival of the lost periodontium using therapeutic measures have always been the unceasing objective since decades. Root bio modification agents have been used as an adjunct to periodontal regenerative therapy targeting to demineralize the root surface, thereby providing a matrix which supports periodontal regeneration. Recently, maleic acid has been used as a smear layer removal agent in the field of Endodontics. Hence, the aim of the present study was to evaluate the use of maleic acid as a root bio modification agent and to compare it with three other root conditioning agents for its effectiveness. Method: Twenty extracted single rooted human teeth were selected. Each tooth was decoronated and the apical portion of the root was cut, so as to preserve the mid root portion. Then, the specimens were randomly assigned to four groups of 10 fragments each according to the demineralizing agents used. Group1 (Citric acid) – application of 50% citric acid, pH 1 for 3 minutes. Group 2 (EDTA) – application of 24% EDTA, pH 7, for 3 minutes. Group 3 (Maleic acid) – application of 7% maleic acid, pH 1.3 for 3 minutes. Group 4 (Control) – application of saline for 3 minutes. Scanning electron microscopy was used to check the presence of residual smear layer and the patency of the dentinal tubules along with fibroblast cell attachment on the cemental surface after treatment with the root conditioning agents. The results of this study demonstrated that at the 3 min time interval, Maleic acid group, removed 70% of smear layer compared to Citric acid (50%) and EDTA (30%). Also, all the three experimental groups showed significant fibroblast cell attachment compared to control group. Hence, this study provides suitable information regarding the use of Maleic acid as an *denovo* agent for root biomodification.

Biography

Jothi Varghese, completed graduation in dentistry and post graduation in Periodontics from the renowned Manipal College of Dental Sciences, Manipal University, India. I have also completed a certificate course on Laser Dentistry and currently hold the post of an associate professor in the Department of Periodontology, Manipal University. I am a reviewer to national and international journals. And have around 25 papers published in reputed journals.

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