



0459

New Effective Material for Translucent Teeth Preparation for Dental Education

A. Kostenkova¹, Y. Onashko², A. Kriščiukaitis³, R. Petrolis³, P. Hosseinzadehfard⁴, G. Lodiene⁴

¹Faculty of Odontology, Lithuanian University of Health Sciences, Kaunas, Lithuania, ²Institute of Anatomy, Lithuanian University of Health Sciences, Kaunas, Lithuania, ³Department of Physics, Mathematics and Biophysics, Lithuanian University of Health Sciences, Kaunas, Lithuania, ⁴Department of Dental and Oral Pathology, Lithuanian University of Health Sciences, Kaunas, Lithuania

Objectives Endodontic teaching models do not reflect natural tooth root canal shaping perceptions. As a result, alternative methods for dental education were developed, specifically the use of natural extracted teeth. However, the traditional approach of using methyl salicylate to prepare translucent teeth raises safety concerns due to its high toxicity. The objective of this study was to assess the effectiveness of benzyl alcohol and benzyl benzoate (BABB) solution in clearing extracted teeth.

Methods Freshly extracted 32 single-rooted teeth were immersed in 10% formalin for 24 hours. They were then processed following a standard protocol, which included alternating immersion in 5.25% sodium hypochlorite, demineralization in 5% nitric acid, dehydration in a series of alcohol solutions, and finally placement in xylene. The teeth were then divided into two groups: the first (control) group, consisting of 20 teeth, underwent the traditional protocol, which involved soaking the teeth in 99% methyl salicylate for 24 hours; the second group, consisting of 12 teeth, was immersed into the BABB solution for 24 hours. Optical properties of the processed teeth translucency were evaluated by transluminant light imaging using collimated light source and digital camera C-P8 (Optika, Italy). Image processing algorithms in the MatLab computational environment were used to evaluate the colour and intensity of the translucent light at the apical area of the root in each tooth.

Results The optical properties of selected anatomical locations were the same across both groups of teeth evaluating Hue, Saturation and Value of pixels (independent samples Mann-Whitney U test, $p > 0.2$).

Conclusions Benzyl alcohol and benzyl benzoate solution is equally effective compared to traditional methyl salicylate for preparing translucent teeth in dental education.