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A comparative evaluation of different methods of shade selection by using colorimeter, digital camera, intraoral scanner and spectroshade

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AIM: To verify the appropriate method to select the shade using digital devices such as colorimeter, digital photographs, intraoral scanners and SpectroShade.

Materials and Methodology : The shade selection (A2 ,A3 B2, B4, C3 and D4) was performed using the VITA classic shade guide on the different digital devices i.e intraoral scanner(Trios3S) ,colorimeter (x rite RM200QC) and spectroshade **Micro II Dental Color Complete Tooth Analysis System. The shade selection using digital camera was performed under 2 light conditions namely the natural and the ambient light to ensure that there is no variation in shade.** Each shade tab was scanned 8 times and the average of the CIELAB values were taken. The CIELAB values for the intraoral scanner and the digital camera were obtained from the Adobe Photoshop Software. Data obtained was subjected to statistical analysis.

Results: Within the limitations of the study it showed that there was statistically significant difference between all the shade matching instruments namely DCCL, DCAL, spectroshade, colorimeter and intraoral scanner. ΔE value was least with DCCL followed by Spectroshade, Digital camera with ambient light, Colorimeter and Intraoral scanner. Hence, Digital camera with controlled light emerged as the most accurate and reliable method for shade selection.

Conclusion: Digital photography is cost effective as well as time saving and convenient as compared to other shade matching instruments. Digital photography can emerge as a viable alternative to the use of spectrophotometers for shade selection in a clinical setup. If this technique is carried out in the correct scientific manner, it is an objective method and is not dependent on the dentist and patient factors.

Key words: shade selection; digital shade matching; colorimeter; spectroshade; intraoral camera; CIELAB values; light source.

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