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COMPARISON OF RADIOPACITY BETWEEN DENTAL STRUCTURES AND DENTAL CERAMICS USING DIRECT DIGITAL IMAGE

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Objective: The aim of this study is to compare the radiopacity of different ceramic systems by digital radiographs and evaluate the chemical composition of the samples by Raman spectroscopy.

Method: Was prepared three specimens for each ceramic tested: G1 VM7 feldspathic porcelain (VITA Zahnfabrik), IPS e.max Press G2 (IPS Empress), System In Ceram Alumina G3 and Zirconia G4 (Wilcos Brazil), Lava system All Ceram G5 (3M/ESPE) and Zircozahn system G6 (Talladium Brazil). For measurements of Raman spectroscopy was used Horiba Jobin-Yvon spectrometer coupled to Labra HR a full petrographic microscope. The digital radiographic images were evaluated for optical density through the histogram tool of Adobe Photoshop ® 8.0 (Adobe). This software were obtained the average greyscale for all steps of the aluminum scale, for the specimens studied the ceramics and enamel and dentin of the tooth sectioned. Statistical analysis was done with the program BioStat with analysis of variance (ANOVA) with significance level of 1% and test post-hoc of Tukey.

Results: The radiopacity of all materials tested showed statistically significant differences ($p < 0.01$) except between the G5 and G6.

Conclusion: We conclude that the radiopacity is closely linked to the chemical composition of each ceramic system, only G1 showed lower radiopacity human dental structures.