Objective: The aim of this study was to evaluate the radiopacity of different composite resins and compare the values to those of human enamel and dentine. Materials and Methods: Five specimens of each material with thicknesses of 2 mm were prepared and radiographed alongside aluminum step wedge and human enamel and dentin. Three occlusal radiographs for each material were taken and digitized using a desktop scanner. Mean gray values of the test materials were measured using Image J software. Then a conversion was performed according to establish the radiopacity of the test materials, in millimeters of equivalent Al. Data were analyzed using one-way analysis of variance and Duncan multiple range tests ($P < 0.05$).

Results: The radiopacity values varied among the restorative materials ($P < 0.05$). The radiopacity values of the materials tested were, in decreasing order: Enamel Plus HRI > Z250 > Filtek Ultimate ≥ Z550 > Nexcomp ≥ Nanoceram Bright > enamel ≥ Estelite Sigma Quick > Clearfil Majesty Esthetic ≥ Reflexions XLS ≥ Aelite LS Posterior ≥ dentin ≥ 2 mm Al. Conclusion: All resin composite materials investigated in this study presented different radiopacity values. However, all materials had radiopacity values greater than dentin and had sufficient radiopacity to meet International Organization for Standardization 4049 standard.

Key words: Dental, radiography, radiopacity, resin composite