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Ultraviolet a and ultraviolet c light-induced effect on titanium implant surface

[Efecto inducido por luz ultravioleta a y ultravioleta c en superficies de implantes de titanio]

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[Zaheer N.](#)^{a,b,c}; [Abdullah A.M.](#)^a; [Rajion Z.A.](#)^{a,d} ; [Shahbaz M.](#)^e; [Zaheer U.](#)^f; [+2 authors](#)

^aSchool of Dental Sciences, Health Campus, Universiti Sains Malaysia, Kubang Kerian, Kelantan, 16150, Malaysia

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Abstract

Photofunctionalization of titanium implants results in increasing hydrophilicity without altering the surface topography. Limited research has been done to observe the surface changes following UV irradiation and none have been performed on sandblasted acid-etched (SLA) titanium implants. Thus, this interventional experimental study aimed at assessing the changes in pore diameter on titanium dental implants surfaces following UV irradiation with varying wavelengths through field emission scanning electron microscopy analysis (FESEM). A total of nine fixtures were acquired at random and distributed into three groups. Group A was the control group receiving no radiation, while fixtures in group B were exposed to ultraviolet A irradiation (UVA) and group C to ultraviolet C

irradiation (UVC) respectively. Alterations or changes in pore diameter were analyzed on implant surfaces through FESEM and a comparison was made among three groups. Significant changes in pore diameter were identified in all three groups. Moreover, the mean pore diameters on the surfaces of UVC treated implants were significantly larger compared to UVA and control group. In conclusion, UVC irradiation has the ability to increase the pore diameter. © 2021, Interamerican Society for Electron Microscopy (CIASEM). All rights reserved.

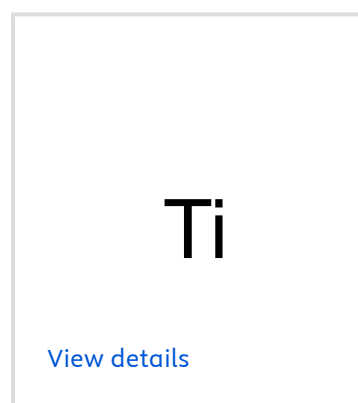
Author keywords

Field Emission Scanning Electron Microscopy; Photofunctionalization; Sandblasted acid etched; Ultraviolet A irradiation; Ultraviolet C irradiation

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Corresponding authors

Corresponding author	Z.A. Rajion
Affiliation	School of Dental Sciences, Health Campus, Universiti Sains Malaysia, Kubang Kerian, Kelantan, 16150, Malaysia
Email address	zainulrajion@iium.edu.my

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