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Volume Page

Keyword: [TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

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[\[PDF \(521K\)\]](#) [\[References\]](#)**Effect of Surface Modification on the Photocatalysis of Ti-Ni Alloy in Orthodontics**[Yosuke HORIUCHI](#)¹⁾, [Mariko HORIUCHI](#)¹⁾, [Takao HANAWA](#)²⁾ and [Kunimichi SOMA](#)¹⁾

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Abstract:

Photocatalytic activity from the reaction of titanium oxide with ultraviolet light has recently gained much attention. In particular, there is scientific interest in inducing photocatalytic reactions on Ti-Ni alloy, a material widely used in orthodontic applications. However, it is believed that inducing a photocatalytic reaction with an amorphous oxide film on the alloy is a difficult challenge. In this study, therefore, we sought to induce a photocatalytic reaction on Ti-Ni alloy by subjecting the latter to electrolytic and heat treatments. Then, an antibacterial test was used to examine whether a photocatalytic reaction had indeed been induced. By thickening the titanium oxide film with electrolytic treatment and then applying heat treatment, the surface oxide film of Ti-Ni alloy was thus modified from amorphous structure to rutile crystal. Furthermore, it was revealed that Ti-Ni alloy had an antibacterial effect by virtue of the photocatalytic reaction.

Key words:[Ti-Ni alloy](#), [Surface characterization](#), [Photocatalytic property](#)[\[PDF \(521K\)\]](#) [\[References\]](#)Download Meta of Article [\[Help\]](#)[RIS](#)

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