

A Combined Triple-Wavelength (755nm, 810nm, and 1064nm) Laser Device for Hair Removal: Efficacy and Safety Study

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ABSTRACT

Background: Photoepilation by a single-wavelength laser device is being commonly used for hair removal. Whether emitting multiple laser wavelengths to induce hair unit damage would be beneficial is yet to be established.

Objective: To evaluate the safety and efficacy of hair reduction using a novel simultaneous multi-wavelength laser device.

Patients and methods: A retrospective cohort study was carried out among adult males. Hairy sites were treated by a simultaneous triple-wavelength (755nm, 810nm and 1064nm) laser device (Soprano Titanium. Caesarea, Israel: Alma Lasers Ltd). Treatment parameters were: fluence of 7-9J/cm², pulse frequency of 9-10Hz and spot sizes of 2cm² or 4cm². Participants underwent up to 6 treatments at 6-8 weeks intervals and were followed for 4-6 months. Clinical photography before and after treatment was documented. Treatment efficacy was assessed using Global Aesthetic Improvement Scale (GAIS; scale of 0 [no improvement] to 4 [excellent improvement; Over 75% hair reduction]) by two independent dermatologists. Participants' satisfaction was rated on a scale of 1 (not satisfied) to 5 (very satisfied). Pain perception and adverse events were recorded as well.

Results: A total of 27 treatment sites among 11 participants, with Fitzpatrick skin type III-V, were included. Mean hair reduction was 3.4 out of 4 in the GAIS. Participants' satisfaction rate was high (mean, 4.8). No adverse events were recorded.

Conclusion: Simultaneous triple-wavelength laser device is a safe and effective hair removal modality. *J Drugs Dermatol.* 2020;19(5): doi:10.36849/JDD.2020.4735

INTRODUCTION

The demand for effective removal of unwanted body hair is an increasing trend promoting photoepilation by laser or other light-based technology as the fastest growing procedure in cosmetic dermatology.¹

Photoepilation utilizes light to cause photo-thermal or photo-mechanical damage to the hair follicles. Selective photothermolysis of the hair unit is aimed to achieve a permanent damage of the hair follicle, specifically to the follicle stem cells within the hair bulge, with the surrounding tissue held intact. Light absorbing chromophores within the multi-cellular hair unit include melanin, hemoglobin and water. Among these, melanin is considered to be the most attainable target for selective photothermolysis. The hair unit is destroyed by heat diffusion from the eumelanin-rich hair structures. Prolonged hair growth delay is attained by causing either damage to matrix cells of anagen hair follicles or coagulating blood vessels of the papilla or possibly by destroying part of the outer root sheath (ORS).²

Link to the abstract on JDD - <https://bit.ly/2WvApn6>