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## Clinical evaluation of fullerene-C60 dissolved in squalane for anti-wrinkle cosmetics.

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### Abstract

Highly purified and organic solvent-free fullerene-**C60** was dissolved, at nearly saturated concentration of 278 ppm, in squalane prepared from olive oil, which is designated as **LipoFullerene** (LF-SQ) and was examined for usage as a cosmetic ingredient with antioxidant ability. The aim of this study was to assess the anti-wrinkle formation efficacy of LF-SQ in subjects. A total of 23 Japanese women (group I: age 38.9 +/- 3.8, n = 11, group II; age 39.4 +/- 4.3, n = 12) were enrolled in an 8-week trial of LF-SQ blended cream in a randomized, matched pair double-blind study. The LF-SQ cream was applied twice daily on the right or left half of the face, and squalane blended cream (without fullerene-**C60**) was applied as the placebo on another half of the face. As clinical evaluations of wrinkle grades, visual observation and photographs, and silicone replicas of both crow's feet areas were taken at baseline (0 week) and at 4th and 8th weeks. Skin replicas were analyzed using an optical profilometry technique. The wrinkle and skin-surface roughness features were calculated and statistically analyzed. Subsequently, trans-epidermal water loss (TEWL), moisture levels of the stratum corneum, and visco-elasticity (suppleness: RO and elasticity: R7) were measured on cheeks by instrumental analysis. LF-SQ cream enhanced the skin moisture and the anti-wrinkle formation. LF-SQ cream that was applied on a face twice daily was not effective at 4th week, but significantly more effective than the placebo at 8th week ( $p < 0.05$ ) without severe side effects. The roughness-area ratio showed significant improvement ( $p < 0.05$ ) at 8th week with LF-SQ cream as compared to 0 week with LF-SQ cream, but no significant difference was detected between LF-SQ cream and the placebo. We suggest that LF-SQ could be used as an active ingredient for wrinkle-care cosmetics.

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