

Topical Effects Of A Novel Blend Of Natural Compounds, Blended In DermaStem® On Human Skin.

INTRODUCTION

The objective for this research was to document the effects of DermaStem® in order to prepare a formula aimed at increasing skin hydration and elasticity, while achieving wrinkle reduction in healthy human facial skin.

Skin health and protection from premature aging associated with oxidative stress, inflammation and reduced renewal ability is a complex interplay of different biological functions. The healthy proliferation and migratory capacity of dermal fibroblasts their matrix deposition and protection from damage by free radicals, are important factors in skin aging, elasticity and hydration, leading to wrinkle formation.

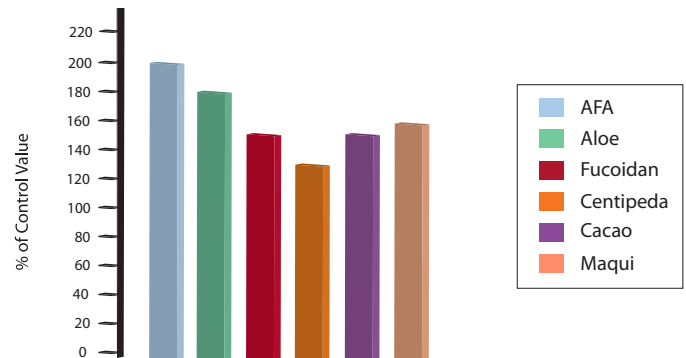
The aim in the development of DermaStem® was to identify natural compounds that would have an effect on the proliferation and differentiation of skin, and would therefore support the actual restructuring of the skin, leading to greater moisture retention, greater elasticity and consequently a reduction in fine lines and wrinkles.

METHODS & RESULTS

A panel of in vitro tests was performed to document effects on primary adult dermal fibroblasts

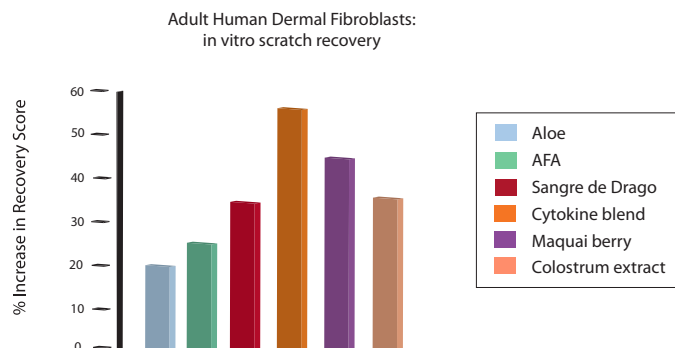
A) Proliferation

In brief, Aphanizomenon flos-aquae (AFA), Aloe vera, fucoidan from Undaria pinnatifida, Maqui berry, Centipeda cunninghamii, and Theobroma cacao significantly increase dermal fibroblast proliferation by a magnitude ranging between 29% and 96% above baseline. Vanilla bourbon and Colostrum did not significantly increase dermal fibroblast proliferation on their own but synergistically potentiated the effect of AFA. A blend of growth factors led to a 225% increase in dermal fibroblast proliferation above baseline.



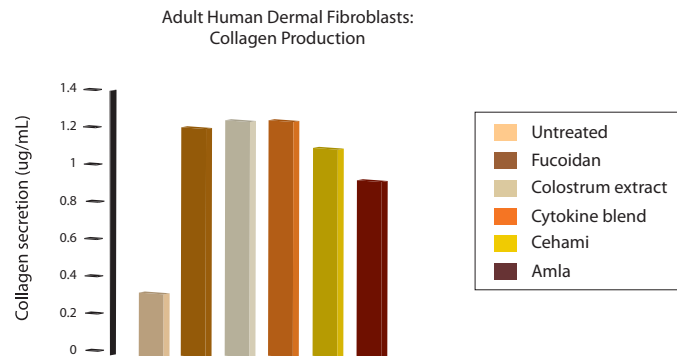
B) The ingredients in DermaStem® had a substantial effect on scratch recovery

A blend of Cytokines (growth factors) led to substantial increase in dermal fibroblasts migration and accelerated recovery of the in vitro scratch. In addition, Aphanizomenon flos-aquae (AFA), Aloe vera, Sangre de Drago, Maqui berry and fractionated Bovine Colostrum further supported accelerated recovery.

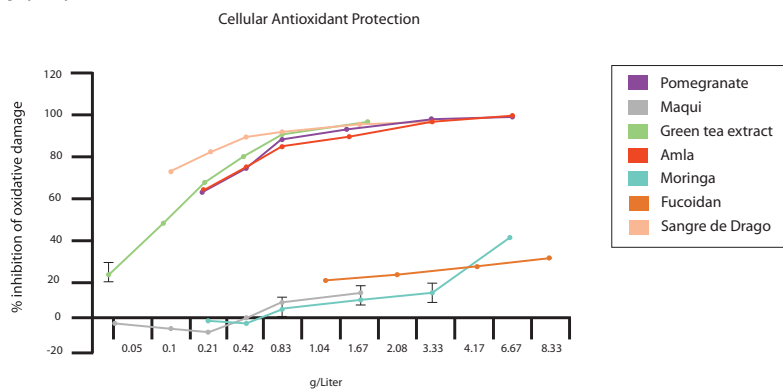


C) Matrix deposition (collagen production)

Collagen production by primary human Dermoblasts in culture was increased by fucoidan from *Undaria pinnatifida*, colostrum, cytokines, and Vanilla bourbon.

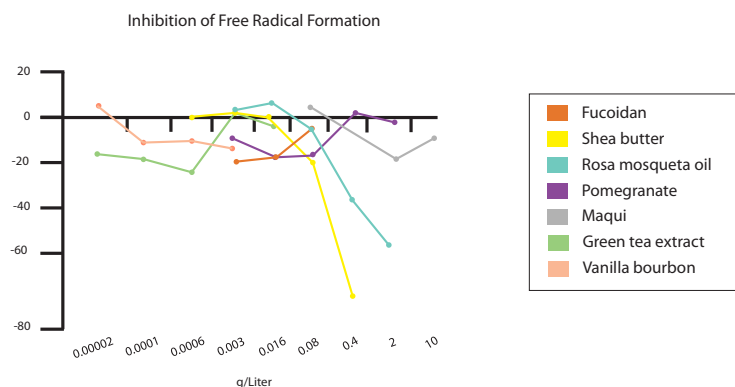


Antioxidant and anti-inflammatory properties



D) Cellular antioxidant protection Capacity of each ingredient in DermaStem® was tested in the CAP-e bioassay, which tests intracellular antioxidant protection under oxidative stress. The in vitro data showed potent antioxidant bioavailability at the cellular level by Indian gooseberry (AMLA), Pomegranate, Sangre de Drago and Green tea extract.

E) Inhibition of free radical formation by inflammatory cells



The ingredients were also evaluated for the ability to inhibit free radical formation by inflammatory cells placed under oxidative stress conditions. The data showed reduced free radical production by ingredients in DermaStem® included fucoidan from *Undaria Pinnatifida*, Shea butter, Rosa mosqueta, Maqui berry, Pomegranate, Vanilla bourbon, and Green tea extract.

CONCLUSIONS

The data from these series of in vitro tests backed up the Hypothesis that several specific mechanisms of actions including: cellular antioxidant protection, inhibition of free radical formation, renewal capacity as well as Collagen production were supported by this novel blend of ingredients blended in DermaStem® Renewal Serum.