

A cosmetic formulation with nitric oxide synthase inhibitors shows improvement in facial erythema in vivo- David Gan- Mary Kay

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Facial Erythema (redness) or Erythrosis is a chronic inflammatory skin condition that is characterized by aberrations in immunological responses and cutaneous vasculature. Pathophysiological changes include elevated expression of cytokines, chemokines, impaired skin barrier function, vasodilation of blood vessels and increased blood flow. Elevated levels of Nitric Oxide (NO), a key regulator in vasodilation of blood vessels, pro-inflammatory cytokines and chemokines has been shown in individuals with persistent redness. Currently, there are very few cosmetic formulations available that effectively treat facial redness. Here, we identified four botanical extracts that reduced the expression of pro-inflammatory cytokines, chemokines and Nitric Oxide Synthase; an enzyme that catalyzes the production of Nitric Oxide (NO) in cultured normal human epidermal keratinocytes (HEKa) and Human Umbilical Vein Endothelial Cells (HUVEC). Twenty-two (22) subjects with

persistent facial erythema were enrolled in a proof of concept clinical study to measure the effects of a cosmetic formulation containing these extracts on facial redness in vivo. Subjects applied the cosmetic formulation twice daily over 4 weeks. Skin temperature values, indicator of skin microcirculation, was measured by infrared thermography, visual assessment of redness and digital images were captured at baseline, weeks 2 and 4 after product use. Evaluations from clinical grading revealed a significant reduction in overall facial redness after 4 weeks. In addition, infrared thermograph image analysis showed a significant reduction in skin temperature compared to baseline that correlated with facial redness. These data demonstrate that our cosmetic formulation effectively treated facial erythema with improvements in overall reduction of redness and skin temperature.