PIGMENTATION

VITAMIN C PREVENTS UV INDUCED PIGMENTATION IN HEALTHY VOLUNTEERS: BAYESIAN META-ANALYSIS RESULTS FROM THIRTY-ONE RANDOMIZED CONTROLLED VERSUS VEHICLE CLINICAL STUDIES

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Introduction: Repeated non-extreme sun exposures induce skin pigmentation by increasing melanin production and by oxidizing preexisting melanin and melanin precursors. This may lead, over the years, to skin disorders and skin color heterogeneity such as hyperpigmented spots.

Objective: To assess, throughout 31 randomized controlled clinical trials the potential of Vitamin C to limit UV daylight induced pigmentation, in dose response and in different skin type populations (Caucasian and Chinese).

Materials & Methods: 31 intra-individual, randomized controlled clinical trials were conducted on Caucasians and Chinese subjects (15 to 35 healthy male or female volunteers per studies (741 volunteers in total) between 18 and 50 years of age, with Phototype III and Individual Typology Angle (ITA°) value between 28° and 49° were recruited) to compare the potential of Vitamin C (formulated with a co-polymer Styrène - Anhydride Maléique (SMA)) to decrease pigmentation induced by UV Daylight exposures. Results from these studies have been combined using a Bayesian meta-analysis to provide probabilistic evidence of the effect of Vitamin C by dose and by Caucasian or Chinese population.

Results: The analysis showed that Vitamin C is effective in reducing the pigmentation induced by UV daylight-simulated expositions (4 days at 0.75MED), in a dose dependent manner. During the depigmentation phase no additive value was provided by the Vitamin C. This suggests that the lightening properties described into the literature for the Vitamin C correspond to an anti-pigmenting efficacy rather than a depigmenting effect.

Conclusion: Vitamin C is a valuable and safe dermo-cosmetic anti-pigmenting compound

with a strong effect at 10%. With regular topical application it may be a useful agent against signs of photo-ageing like skin heterogeneity and pigmented spot.