

Effectiveness of a formulation of glycolic acid with vitamin C for reducing visible signs of photoaging

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RATIONALE AND OBJECTIVES

- Middle-aged individuals, especially those living in urban areas, often have dull complexions with solar lentigines caused by the exposome, especially chronic UV exposure and potentially pollution^{1,2}.
- Ampoules have been developed with a minimalist highly effective formula, including a glycolic acid complex of 4% glycolic acid, 1% citric acid, and 5% HEPES, for the peeling effect; natural vitamin C for the correction and prevention of dark spots; hyaluronic acid; and Vichy mineralizing water recognized to be a volcanic mineralizing water (Liftactiv Glyco-C [Vichy]).

METHODS

Three open, clinical studies assessed the efficacy of Glyco-C applied once daily (evening).

The objectives were to evaluate the effectiveness, by clinical assessments and subjective evaluations, of a topical treatment containing a glycolic acid complex and vitamin C derivative on visible signs of photoaging in Caucasian and Asian facial skin.

Learning outcomes include understanding the importance of the composition of topical formulations containing glycolic acid.

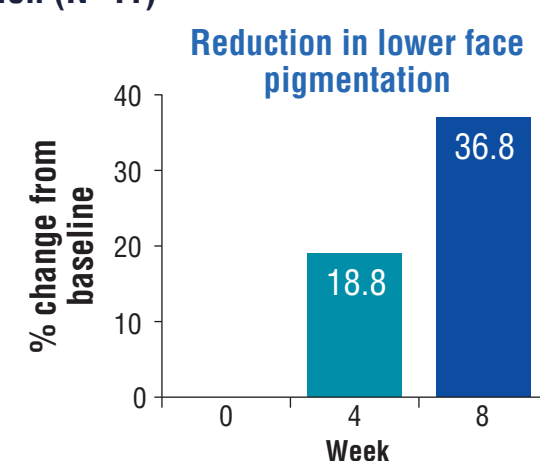
RESULTS

STUDY 1: CAUCASIAN SKIN

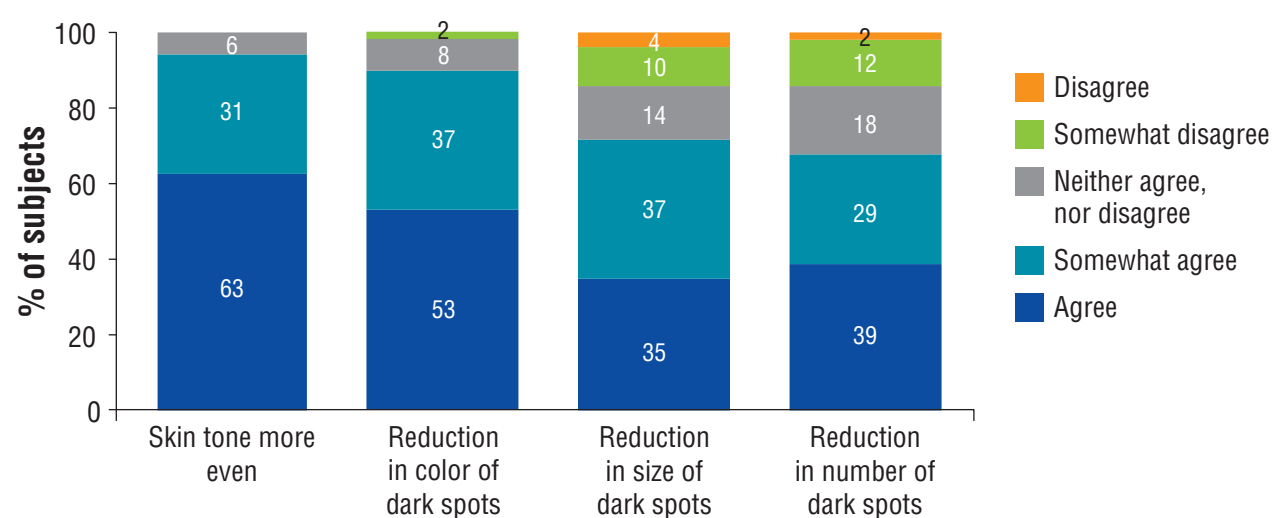
Of 51 subjects without protocol deviations, mean age was 57 years old and 55% declared having sensitive skin.

Investigator-assessed lower face pigmentation (N=41)

In Caucasian women, dark spots were 36.8% less dense at week 8 vs. baseline ($P < .05$).



Subject questionnaires (N=51)



After 8 weeks Glyco-C application:

- 94% agreed that their skin tone looked more even
- 90% of subjects noticed a reduction in the color of dark spots
- 72% a reduction in the size of dark spots
- 68% a reduction in the number of dark spots

STUDY 2: ASIAN SKIN

Of 49 subjects included in the analysis, mean age was 37.6 years old and around 45% had sensitive skin.

Investigator assessment (N=49)

After applying Glyco-C for 8 weeks:

- 22% decrease in number of dark spots ($P < .001$)
- 11% decrease in size of the designated, pigmented spot ($P < .001$)
- 37% improvement of skin radiance ($P < .001$)

Subject visual self-assessment (N=49)

After 8 weeks Glyco-C application compared to baseline:

- 33% decrease in mean number of spots and intensity ($P < .001$)

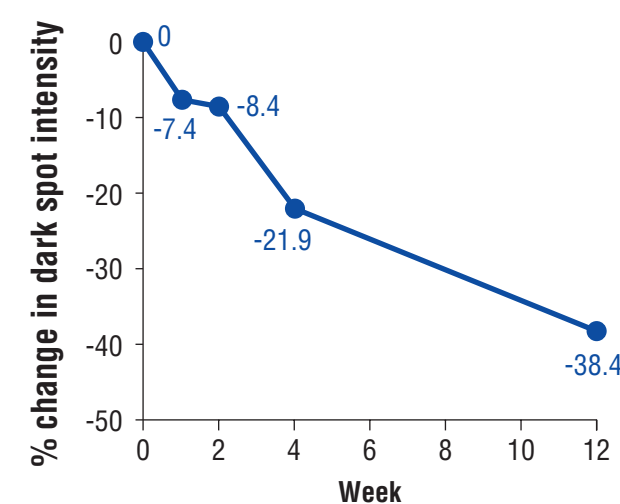
STUDY 3: MULTI-ETHNIC PANEL

Investigator assessment (N=60)

Statistically significant improvement on dark spots after 1 week.

After 12 weeks' application of Glyco-C:

- Appearance and intensity of dark spots decreased 38.4% ($P < 0.0001$)
- Post-inflammatory hyperpigmentation (acne marks) decreased 63% ($P < 0.0001$)
- Skin tone unevenness improved 35.7% ($P < 0.0001$)



Subject self-assessment (N=60)

After 12 weeks Glyco-C application:

- 68% of subjects agreed that the product helps reduce/diminish the appearance of dark spots
- 75% agreed that the overall appearance of their skin had improved

References

- [1] Krutmann J, et al. The skin aging exposome. *J Dermatol Sci*. 2017;85(3):152-161.
 [2] Flament F, et al. Effect of the sun on visible clinical signs of aging in Caucasian skin. *Clin Cosmet Invest Dermatol*. 2013;6:221-32.

STUDY 1: CLINICAL EVALUATION ON CAUCASIAN SUBJECTS WITH PHOTO-AGED SKIN

- **Subjects:** 53 Caucasian subjects
- **Inclusion criteria:** Caucasian women aged 35 to 55 years old with lower face pigmentation of grade ≥ 4 on a 10-point photographic scale



- **Treatment:** Glyco-C was applied once daily (evening) and moisturizer twice daily (with SPF20 in the morning) for 8 weeks in spring time
- **Assessments:** Investigator clinical grading of lower face pigmentation (N=41) and subject questionnaires (N=51)

STUDY 2: CLINICAL EVALUATION ON ASIAN SUBJECTS WITH PHOTO-AGED SKIN

- **Subjects:** 53 Asian subjects
- **Inclusion criteria:** Women with at least 1 well-defined, homogeneous, pigmented spot ≥ 3 mm with an adjacent spotless area and with a moderately dull complexion (inclusion grade ≥ 3 and ≤ 6 on a 10-point scale from 0 [extremely radiant] to 9 [dull]) (the designated spot)
- **Treatment:** Glyco-C was applied once daily (evening) and moisturizer twice daily (with SPF20 in the morning) for 8 weeks in spring time
- **Assessments:** Investigator clinical grading of number of spots and skin radiance on a score from 0 to 9 (N=49)
Subject visual self-assessment on a photographic scale from 1 (without dark spots) to 8 (covered with dark spots) and subject questionnaires (N=49)

STUDY 3: CLINICAL EVALUATION ON A MULTI-ETHNIC PANEL

- **Subjects:** 64 subjects - 60 completed the study: 30 Caucasian, 10 African American, 10 Asian, 10 Hispanic
- **Inclusion:** Women aged 35 to 55 years old, phototype I to IV, mild to moderate dark spots/pigmentation, mild to moderate uneven skin tone, loss of firmness/elasticity
- **Treatment:** Glyco-C was applied once daily (evening) for a 12-week period in January to May
- **Assessments:** Investigator clinical grading of overall appearance and intensity of dark spots and skin tone (N=60)
Subject self-assessment on a 9-point scale from 0 (disagree completely) to 9 (agree completely) (N=60)

CONCLUSIONS

In three studies, Glyco-C topical serum (containing glycolic acid complex and natural vitamin C in amber glass ampoules) was shown to be effective in improving dark spots and uneven skin tone of facial skin in both Caucasian and Asian women.