A Multi-Mechanism Facial Skin Brightening Regimen in Combination with Glycolic Acid Peels Delivers Evenness and Lightening Benefits to an Ethnic Skin Indian Population

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Introduction

Pigmentation irregularities are a major concern for many ethnic skin populations spanning the globe.[1,2] Safe, effective, and aesthetically pleasing formulations that can brighten skin tone and reduce dark spots are requested by dermatology patients around the world.[3] Due to the high incidence of hyperpigmentation in Indian skin, chemical peels and lightening products have become common treatments in India.

A new brightening skincare regimen was developed to target multiple pathways that affect pigmentation. The regimen consists of a facial cleanser, serum, and lotion, containing N-acetylglucosamine and a combination of benefit ingredients. Collectively, these ingredients exfoliate pigmented areas, reduce tyrosinase activity and melanin production, and deliver an overall pigment lightening affect. Glycolic acid peels are used to improve hyperpigmentation in dark-skinned patients.[5]

Objective

A clinical study was conducted to evaluate the efficacy and safety of the NeoStrata® Enlighten regimen in combination with NeoStrata 20% ProSystem Rejuvenating Glycolic Acid Peels in imparting skin brightness, even tone and reduction in hyperpigmentation, relative to baseline condition.

Study Methodology

Study Design	16-week, prospective study evaluating the use of three cosmetic brightening products in combination with 20% free acid glycolic acid peels, with direct comparison to baseline condition
Population/ Inclusion Criteria	42 women enrolled (36 completed), 25-65 years old, in general good health, Fitzpatrick skin types III, IV, and V, of Indian ethnicity, epidermal pigmentation as confirmed by Wood's lamp including: melasma, post inflammatory hyperpigmentation, freckles, age spots, pigmented demarcation lines, and uneven skin tone. Excluded: use of antiaging/skin lightening cosmetics within 2 months, use of cosmetic procedures/retinoids within 6 months, pregnancy/lactation
Clinical Measurements	1) Dermatologist grading of: color (using a shade card 1-15 linear scale), evenness of all-over facial skin tone (1-5 scale), and clarity (presence of hyperpigmentation spots, 1-5 scale); (2) Chromameter (Minolta CR400), measurements were collected on the cheeks and forehead; (3) digital photography with image analysis (Enhanced Image Pro II); (4) self-assessment
Test Products	**Home Care Products (NeoStrata® Enlighten Regimen): (Table 1)** • Ultra Brightening Cleanser (am/pm) • Illuminating Serum (am, under provided SPF 30 sunscreen; pm, under Pigment Controller) • Pigment Controller (pm) **Free Acid Glycolic Acid Peels:** • NeoStrata 20% ProSystem Rejuvenating Peels, pH 1.6 • NeoStrata Bionic Cream applied twice daily, 2 days pre- and post-peel following cleansing with Ultra Brightening Cleanser • Peels were administered at weeks: 2, 8, 14

Table 1. Summary of Key Benefit Ingredients in NeoStrata Enlighten Formulations

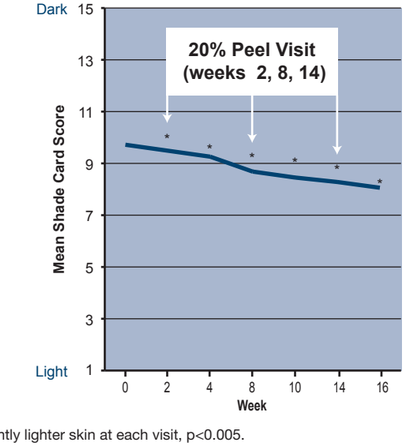
Brightening Agent	Action	Enlighten Ultra Brightening Cleanser	Enlighten Illuminating Serum	Enlighten Pigment Controller (lotion)
N-Acetylglucosamine = NeoGlucosamine® Total 14% across regimen	Reduces tyrosinase & melanin, exfoliates	●	●	●
GigaWhite (alpine plant extracts: Centerchem)	Reduces tyrosinase & melanin	●	●	●
Eucommia Ulmoides Leaf Extract (source of chlorogenic acid: caffeic & quinic acids)	Reduces melanin		●	
Oligopeptide-34 (Caregen)	Reduces tyrosinase, melanin, TYRP-1, melanasome transfer; anti-inflammatory		●	
SabiWhite (source of THC in tumeric: Sabinsa Cosmetics)	Reduces tyrosinase & melanin			●
Vitamin C	Reduces tyrosinase & melanin		●	●
Retinol	Reduces melanin			●

Results

Clinical Grading:

- Dermatologist grading of skin color using a shade card demonstrated significantly lighter skin at each visit, p<0.005 (Figure 1)
- All subjects improved between 1 and 3 grades on the shade card
- Dermatologist assessment of skin tone parameters revealed significant improvements compared with baseline condition, p<0.0001 (Table 2)

Figure 1. Dermatologist Assessment of Skin Color Using Shade Card



*Significantly lighter skin at each visit, p<0.005.

Table 2. Dermatologist Assessment of Skin Tone Parameters

Parameter	Mean Baseline	Mean Week 16
Evenness of Skin Tone	2.97	3.44*
Skin Clarity	2.64	3.14*
Homogeneity of Spots/ Hyperpigmentation	2.36	3.11*

*Significant improvement compared with baseline condition, p<0.0001 (1-5 scale; 5=best)

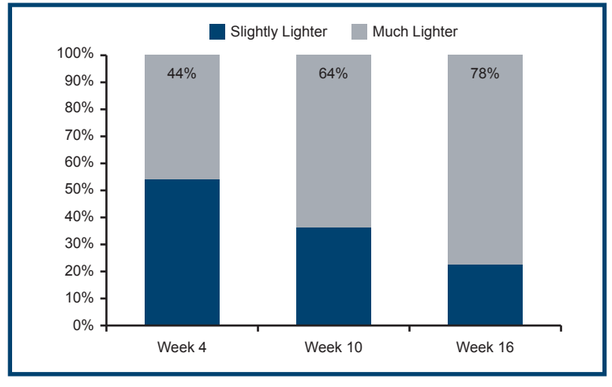
Chromameter:

- A significant increase in luminance (L*)/brightness was observed beginning at week 2 and continuing through week 16, p<0.01

Self-Assessment:

- Self-assessment demonstrated a perceived lightening effect, which supports the clinical grading
- 78% of subjects rated "much lighter" pigmentation at week 16

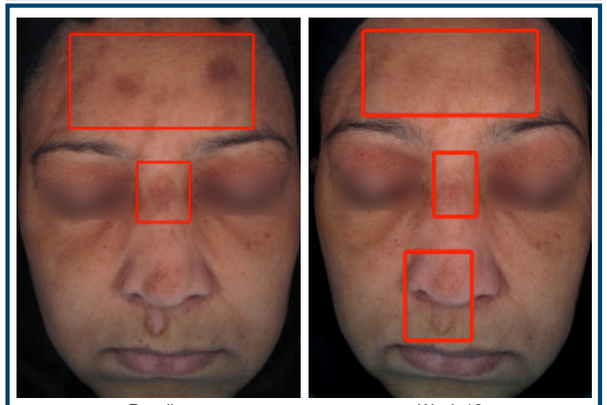
Figure 2. Self-Assessed Lightening of Spots and Pigmentation



Tolerability:

- The brightening regimen in combination with 20% glycolic acid peels was tolerated well overall.
- Dryness increased in some cases, but remained within the tolerable range of negligible to mild.
- One mild case of post-inflammatory pigmentation was reported following the 1st peel procedure and was treated with regular clinical intervention (subject continued in the study). One case of contact dermatitis was reported (subject was discontinued).
- The test regimen plus peels were found to be safe in the controlled conditions under physician direction.
- 100% of the study population preferred the test regimen to their usual skincare regimen.

Clinical Photography



Baseline Week 16

Conclusion

Combination use of the multi-ingredient, brightening skincare regimen with free acid glycolic acid peels, assessed on an Indian population, was proven to be significantly and highly effective in brightening skin tone with reduction in spots and pigmentation based upon:

- ✓ Dermatologist Grading
- ✓ Chromameter Measurement of luminance/brightness
- ✓ Digital Photography
- ✓ Self-Assessment

Visual grading and photographs showed:

- ✓ Lighter and more even skin color
- ✓ Evenness of skin tone
- ✓ Reduced blotchiness
- ✓ Reduction of pigmentation irregularities
- ✓ Improved overall appearance of facial skin

References

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