REVERSING SIGNS OF HAIR AGING:
Clinical Evidence of Gray Hair Pigmentation and Hair Quality Improvement

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BACKGROUND

Hair graying is a prominent sign of aging, characterized by progressive loss of hair pigmentation, primarily associated with melanocyte dysfunction and influenced by multiple genetic, physiological, environmental, lifestyle, nutritional, and medical factors.
Beyond its aesthetic impact, gray hair may affect self-image, confidence, and psychological well-being, driving demand for effective, non-invasive cosmetic strategies to restore a more youthful appearance while supporting scalp and hair health.

OBJECTIVE

To evaluate gray hair color recovery by image analysis and perceived improvements in hair health and quality following 90 days of use of **SHAMPOO DC-21051-33** and **LOTION DC-21052-06.**

STUDY DESIGN

Research Ethics Committee CAAE 68991223.1.0000.5514

17 participants
Mean age: 49 ± 7 years

90 days of home use
Evaluations:
Baseline
45 days
90 days

Shampoo DC-21051-33 and **Lotion DC-21052-06**

Color Recovery by Image Analysis
ROI → Color histogram (C) → Lower C = less gray hair
Perceived efficacy
5-point Likert scale
(1= strongly disagree; 5= strongly agree)

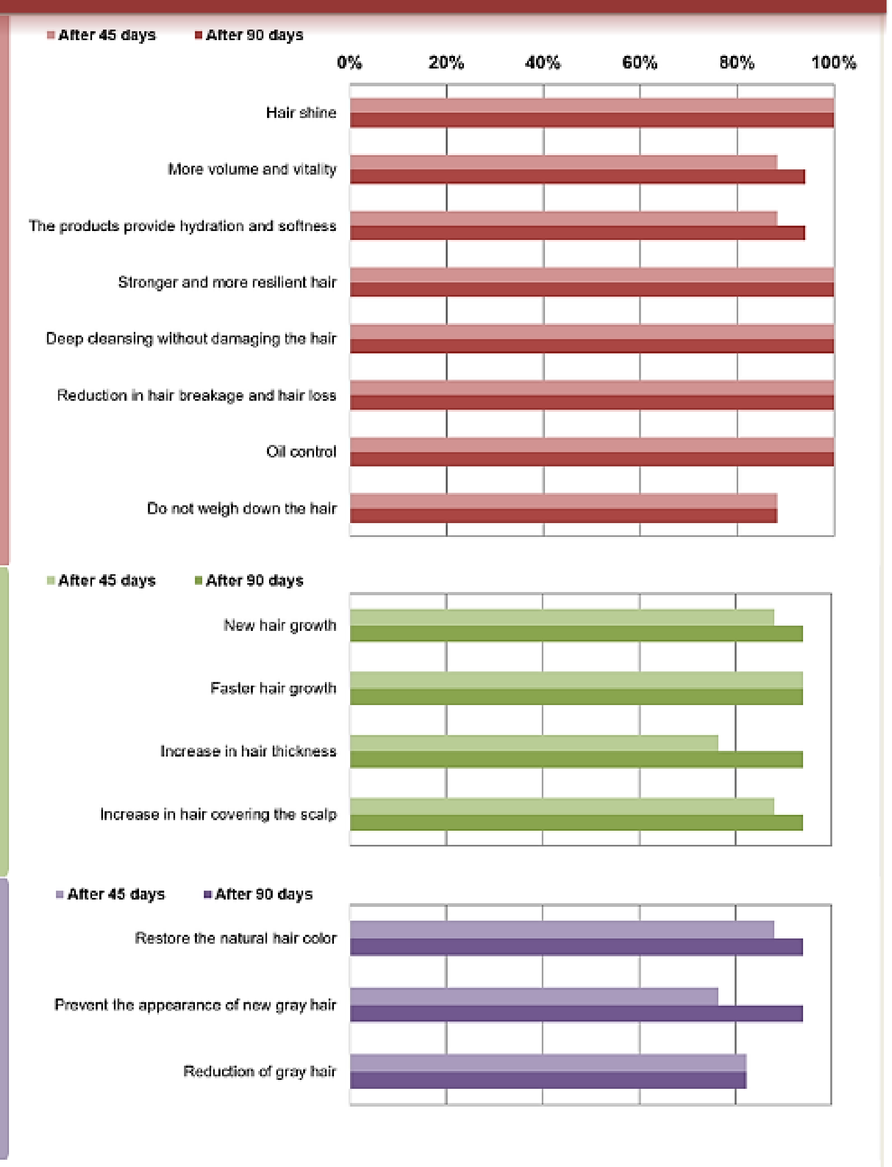
FORMULATION ACTIVES

BIOTIN

NANOENCAPSULATED TRICHOGENIC AUXIN

BLEND OF AMINO ACIDS

SELF-PERCEIVED IMPROVEMENTS (%)



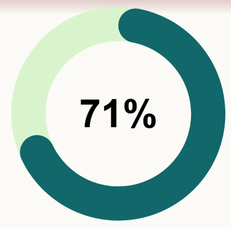
All attributes achieved acceptance rates ≥ 70% after both 45 and 90 days of use.

OBJECTIVE EFFICACY – GRAY HAIR COLOR RECOVERY

AFTER 90 DAYS OF USE

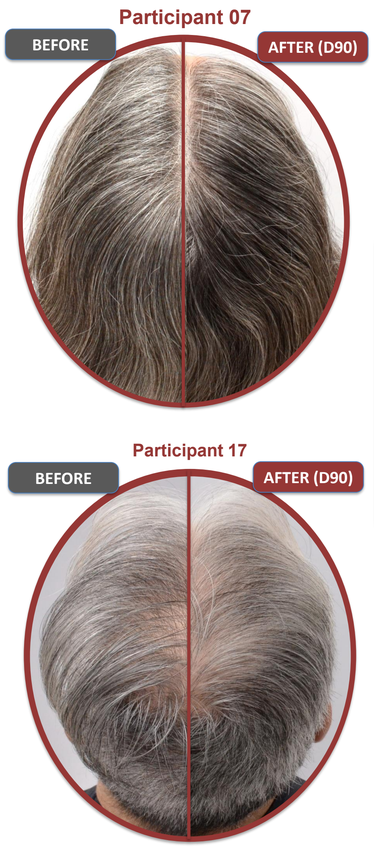
13.7 – 20.4%

REDUCTION IN GRAY HAIR COLOR VARIATION ($p < 0.05$)



of participants showed recovery of gray hair coloration

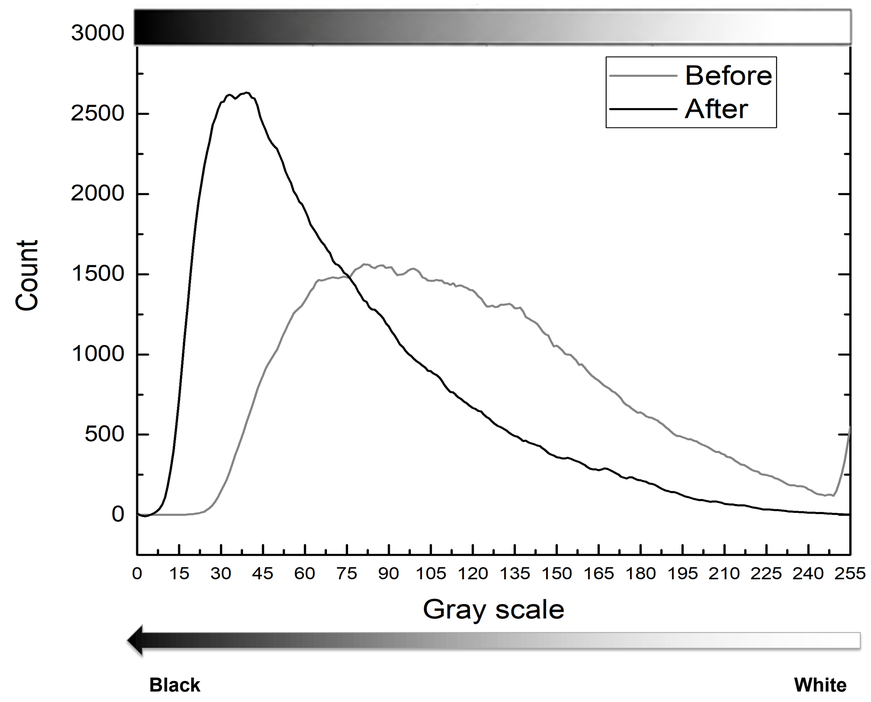
REPRESENTATIVE CLINICAL IMAGES



Visual improvement in hair color uniformity and reduction of gray/white appearance.

INSTRUMENTAL IMAGE ANALYSIS

Gray Scale Histogram_Participant 07



The shift in gray-scale distribution after treatment indicates a measurable change in hair color toward darker tones.

CONCLUSION

After 45 and 90 days of combined use, SHAMPOO DC-21051-33 and LOTION DC-21052-06 showed high perceived efficacy across all evaluated hair health, growth, and pigmentation attributes.
After 90 days of combined use, objective image analysis demonstrated evidence of gray hair color recovery.
The combination represents a promising non-invasive cosmetic approach to support hair pigmentation and overall hair quality.

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