

Tradename: AC MVS Lips

Code: 60050

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Test Request Form #: 11065

Lot #: 9394226

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Test Performed:

In-vivo Sensory Plumping & Consumer Perception Study

Introduction

Sensory ingredients are gaining popularity in the beauty industry as consumers can feel the products working. Pleasant plumping effects can leave our skin feeling refreshed, rejuvenated, and youthful while adding a beauty boost to lips and skin. A perceivable sensory property assists to reinforce the benefits associated with ingredients. Sensory appeal is becoming equally as important as other performance attributes in cosmetic formulations.

Study Principle

The Sensory Plumping & Consumer Perception Study visually demonstrates the perceivable plumping of the lips, while also assessing the perceived lip benefits associated with product application.

Materials

- A. **Gloss Base:** Lip Gloss Base (Table 1)
- B. **Software:** Excel Analysis ToolPak (Microsoft)

Table 1. Ingredient List (INCI Names) of Lip Gloss Base.

	INCI
Lip Gloss Base	Helianthus Annuus (Sunflower) Seed Oil, Sambucus Nigra Fruit Extract, Butyrospermum Parkii (Shea Butter) & Calophyllum Tacamahaca (Tamanu) Seed Oil & Gardenia Tahitensis (Monoi) Flower Extract & Cocos Nucifera (Coconut) Oil & Orbignya Oleifera (Babassu) Seed Oil & Theobroma Grandiflorum (Cupuacu) Seed Butter & Astrocaryum Murumuru Seed Butter, Beeswax

Methods

10 female volunteers between the ages of 22 and 45 and who were known to be free of any skin pathologies participated in this study. In a disposable lip gloss applicator, 1 mg of test material containing the Lip Gloss Base, or 5.0% **AC MVS Lips** in the Lip Gloss Base was provided to the participants. After applying the test material on their lips, participants were asked to assess the plumping properties of the test material after 5 minutes and 2 hours of application (Table 2). Afterwards, participants continued to apply their designated test material twice daily for 1 week. In addition, participants rated a set of sensory parameters on a scale of 1 to 10, with 1 indicating the lowest and 10 representing the highest perceived benefit after immediate application, 2 hours after application, and 1 week of application (Table 3).

Table 2. Rubric for Grading Plumping Effect

Rating	Description
1	No Detectable Plumping Properties
2	Very Slight Perceivable Plumping Effect Detected
3	Perceivable Plumping Effect Detected

Table 3. Sensory Analysis Evaluation Average Ratings and p-values. Asterisks (*) indicate statistically significant differences at $p \leq 0.05$.

Parameter	Description
Lip Hydration	Ability to restore dry and cracked lips
Plumping Effect	Degree at which lips feel and look full
Smoothness	Degree at which lips lack roughness
Softness	Ability to make lips feel supple and pleasing to touch
Gloss Finish	Degree at which lips appear shiny
Comfortable Wear	Degree of pleasant endurance after application
Defined Lip Contour	Degree at which natural lip shape is enhanced to appear fuller
Overall Lip Health	Physical condition of lips

Results

Applying 5.0% **AC MVS Lips** in a Lip Gloss Base demonstrated a perceivable plumping effect within five minutes, two hours and one week after application. Additionally, participants experienced greater perceived sensory benefits after immediate, two hours, and one week of daily application of 5.0% **AC MVS Lips** in a Lip Gloss Base.

Plumping Effect Assessment AC MVS Lips

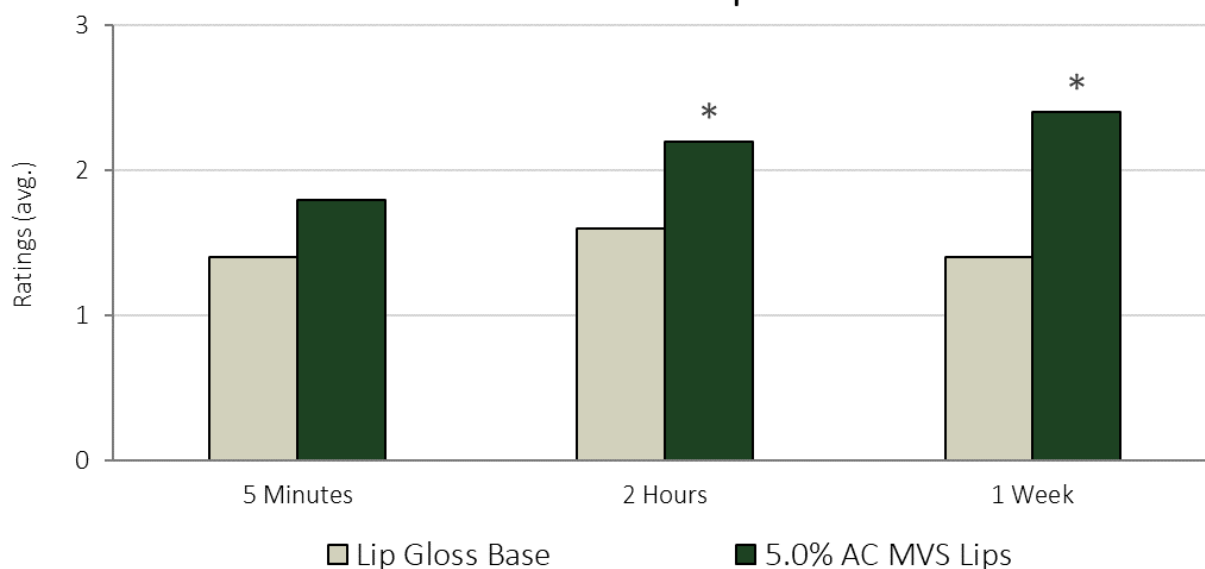


Figure 1. Results of Lip Plumping Effect Assessment. * indicates significance ($p \leq 0.05$) compared to Lip Gloss Base.

Table 4. P-Values from t-test Analyses of Plumping Effect Ratings between 5.0% **AC MVS Lips** and Lip Gloss Base.

* indicates significance ($p \leq 0.05$) compared to Lip Gloss Base within the same timepoint.

	5 Minutes After Initial Application	2 Hours After Initial Application	After 1 Week of Daily Application
P-value	0.083	0.025*	< 0.001*

Sensory Analysis: 5 Minutes After Initial Application AC MVS Lips

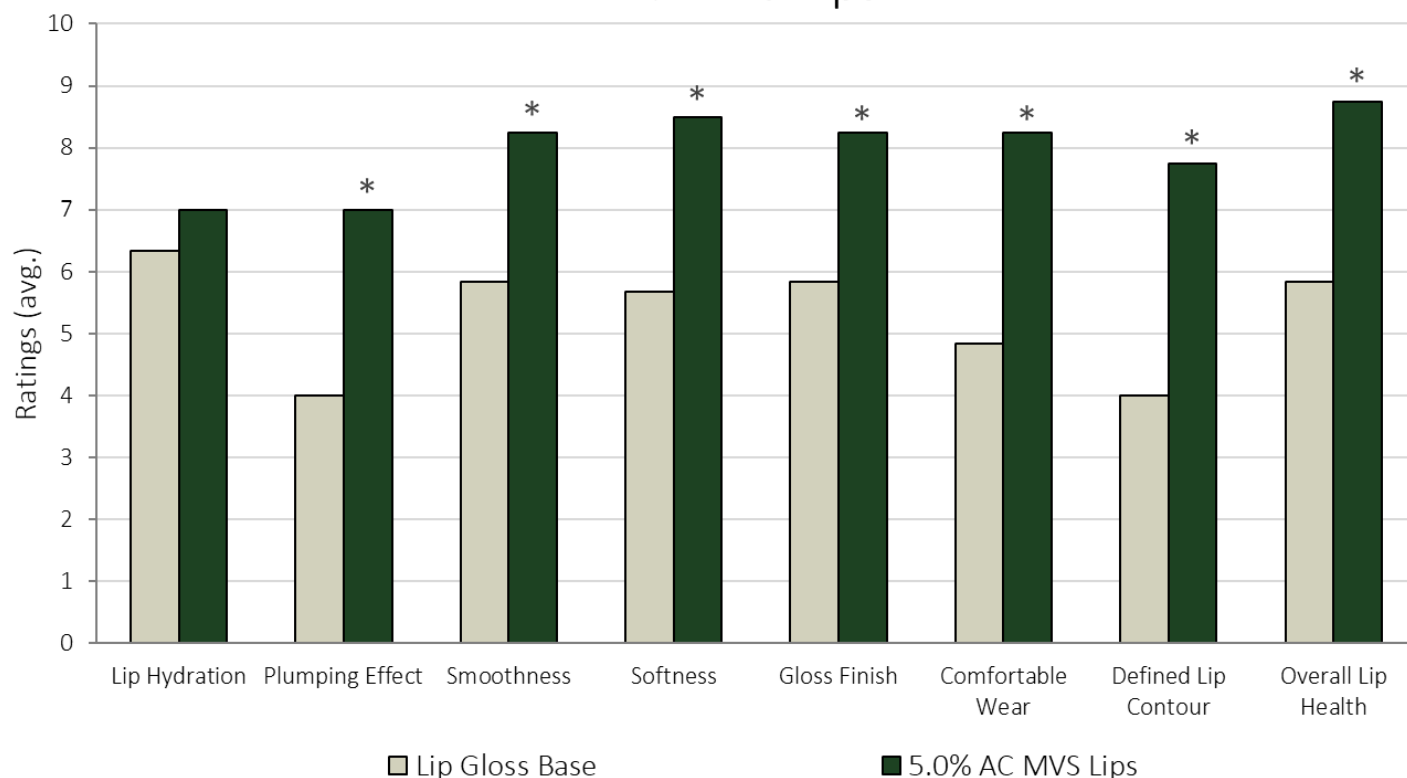


Figure 2. Sensory Analysis Ratings 5 Minutes After Initial Application. * indicates significance ($p \leq 0.05$) compared to Lip Gloss Base.

Table 5. Results from t-test Analyses of Sensory Analysis Ratings 5 Minutes After Initial Application between 5.0% AC MVS Lips and Lip Gloss Base. * indicates significance ($p \leq 0.05$) compared to Lip Gloss Base.

	Lip Hydration	Plumping Effect	Smoothing	Softness	Gloss Finish	Comfortable Wear	Defined Lip Contour	Overall Lip Health
P-value	0.070	0.019*	0.033*	0.047*	0.037*	0.039*	0.025*	0.041*

Sensory Analysis: 2 Hours After Initial Application AC MVS Lips

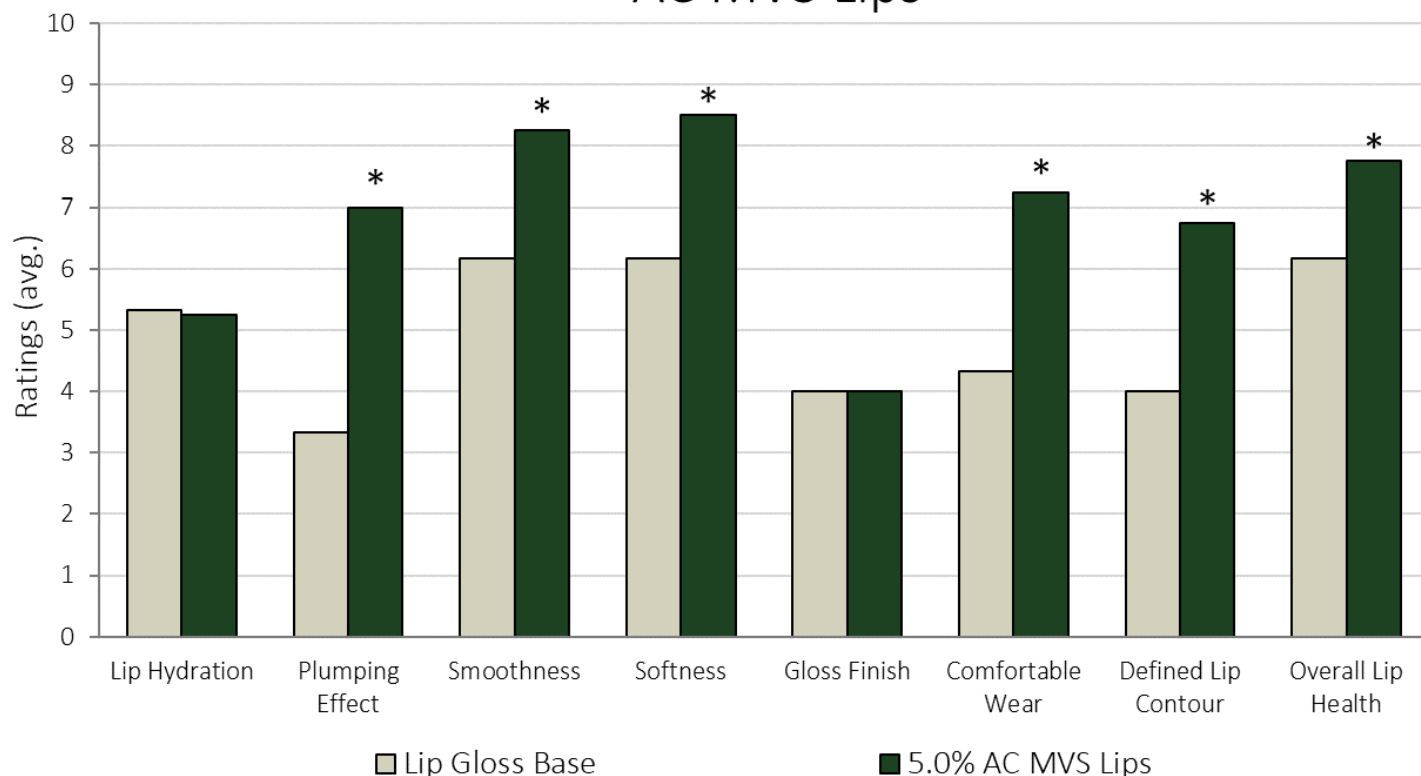


Figure 3. Sensory Analysis Ratings 2 Hours After Initial Application. * indicates significance ($p \leq 0.05$) compared to Lip Gloss Base.

Table 6. Results from t-test Analyses of Sensory Analysis Ratings 2 Hours After Initial Application between 5.0% AC MVS Lips and Lip Gloss Base. * indicates significance ($p \leq 0.05$) compared to Lip Gloss Base.

	Lip Hydration	Plumping Effect	Smoothing	Softness	Gloss Finish	Comfortable Wear	Defined Lip Contour	Overall Lip Health
P-value	0.190	< 0.001*	0.012*	0.043*	0.104	0.013*	0.022*	0.043*

Sensory Analysis: 1 Week of Daily Application AC MVS Lips

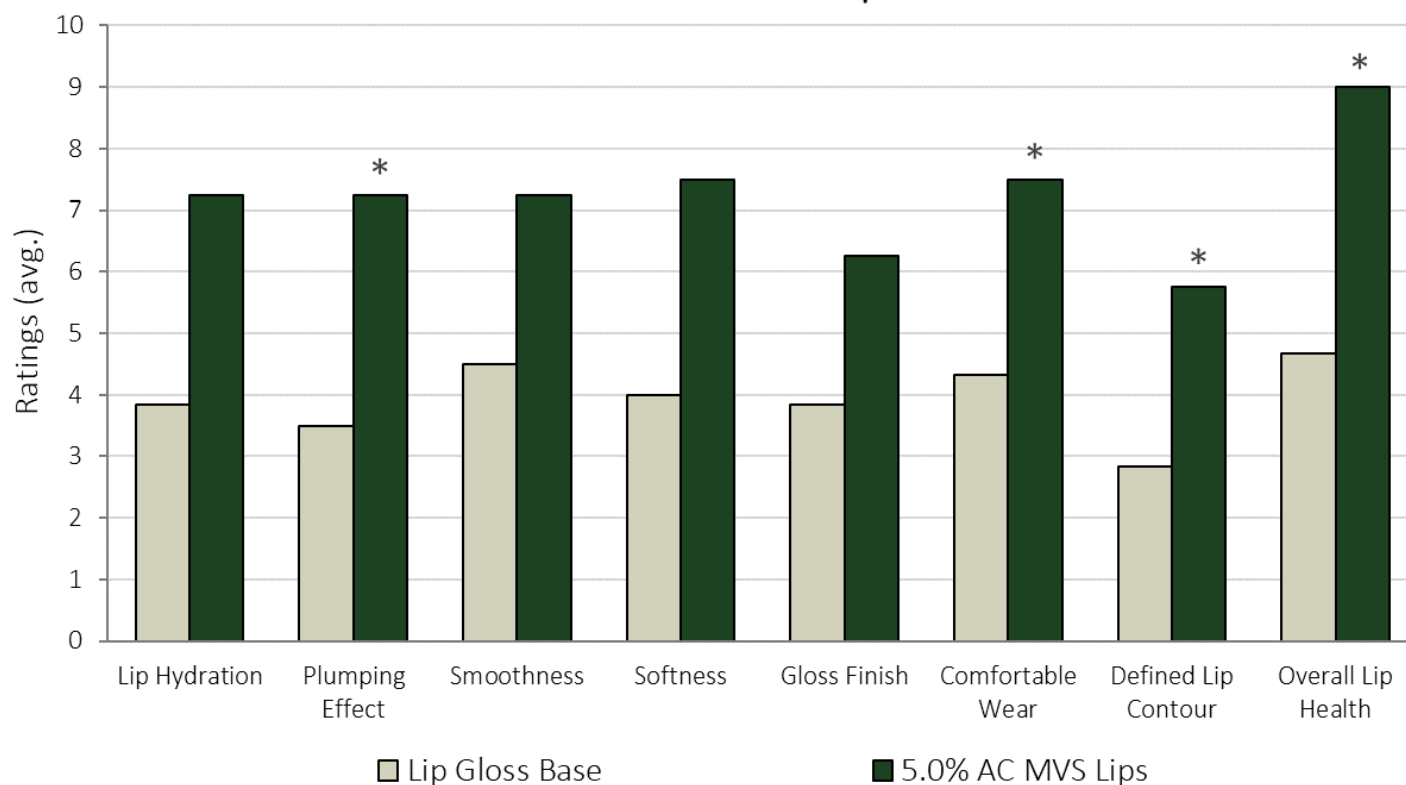


Figure 4. Sensory Analysis Ratings After 1 Week of Daily Application. * indicates significance ($p \leq 0.05$) compared to Lip Gloss Base.

Table 7. Results from t-test Analyses of Sensory Analysis Ratings after 1 Week of Daily Application between 5.0% AC MVS Lips and Lip Gloss Base. * indicates significance ($p \leq 0.05$) compared to Lip Gloss Base.

	Lip Hydration	Plumping Effect	Smoothing	Softness	Gloss Finish	Comfortable Wear	Defined Lip Contour	Overall Lip Health
P-value	0.103	0.025*	0.073	0.060	0.076	0.046*	0.018*	0.048*

Before Application		
5 Minutes After Initial Application		
2 Hours After Initial Application		
1 Week of Daily Application		
	Participant 1	Participant 2

Image 1. Participant Images Before and After **AC MVS Lips** Application Overtime.

Before Application		
5 Minutes After Initial Application		
2 Hours After Initial Application		
1 Week After Initial Application		
	Participant 3	Participant 4

Image 2. Participant Images Before and After **AC MVS Lips** Application Overtime.

Discussion

The results of this study demonstrate 5.0% **AC MVS Lips** subjectively invokes an observable lip plumping effect as well as a variety of sensory parameters when incorporated into a Lip Gloss Base.

After both 2 hours and 1 week of **AC MVS Lips** application, participants experienced a significant perceivable plumping effect (Figure 1; Table 4). After **AC MVS Lips** application, participants experienced a 29%, 38%, and 71% increase in perceivable plumping effects after 5 minutes, 2 hours, and 1 week of application compared to the Lip Gloss Base alone (Figure 1; Table 4). These results indicate that application of **AC MVS Lips** provides both an immediate, short-term, and long-term plumping effect on the lips with daily application.

The Sensory Analysis results reveal several positive physical characteristics of **AC MVS Lips** when added to a Lip Gloss Base. As shown in Figure 2, 5.0% **AC MVS Lips** achieved higher perceived sensory benefits 5 minutes after the initial application when compared to the Lip Gloss Base. Moreover, participants who applied 5.0% **AC MVS Lips** experienced significantly higher levels of smoothness, softness, and comfortable wear compared to the Lip Gloss Base alone, in addition to a greater plumping effect, defined lip contour, and overall lip health (Figure 2; Table 5). These results indicate that **AC MVS Lips** improves overall lip health by augmenting smoothness and softness while also enhancing the glossiness of lips.

Additionally, 2 hours after 5.0% **AC MVS Lips** application, participants continued to see significant benefits regarding plumping effect, smoothness, softness and comfortable wear, compared to the Lip Gloss Base alone, while also experiencing increased levels of defined lip contour and overall lip health (Figure 3; Table 6). These results indicate that **AC MVS Lips** maintains higher overall lip health by inducing plumping effects that smooth and soften the lips over the course of 2 hours compared to the Lip Gloss Base alone.

Furthermore, 1 week after daily application of **AC MVS Lips**, participants continued to experience higher perceived benefits relating to plumping effect, defined lip contour, and comfortable wear compared to the Lip Gloss Base alone (Figure 4; Table 7). Participants who used the Lip Gloss Base experienced significantly lower overall lip health than those who applied **AC MVS Lips** daily for 1 week (Figure 4; Table 7). These results indicate **AC MVS Lips** provides lip plumping effects as well as increases overall lip health after 1 week of daily application.

Visually, participants experienced an increase in lip size through the plumping properties of **AC MVS Lips** application (Images 1, 2). Additionally, defined lip contour was also visibly augmented at various timepoints throughout the study (Images 1, 2). These results indicate that daily application of **AC MVS Lips** provides fuller and plumper lips for a short period of time.

With the present study, we confirm that **AC MVS Lips** invokes an observable lip plumping effect as well as imparting benefits that improve the sensorial assessment of overall lip health and product comfortability. Including **AC MVS Lips** in personal care applications at recommended use levels can help to create a refreshing and consumer recognizable product with perceivable lip plumping and sensory benefits.