



YOUR HEALTH & BEAUTY

nutrition specialist

Cruelty Free • Non-GMO • Sustainable • Vegan

## ABOUT FACE:

How

Sunflower Sterols

Enhance Skincare



SLOWING COLLAGEN LOSS PROTECTS AGAINST SUN DAMAGE ANTI-AGING

## INTRODUCTION

Women (and many men) of all ages know that putting their best faces forward will help them attain goals through confidence. Cosmetics are formulated to help boost self-confidence via enhancing the visual appearance of skin — making it look more youthful, glowing, dewy and fresh. These are adjectives that consumers respond to, and view as desirable attributes.

Although these adjectives may be clinically hard to define, they do have meaning. Specific ingredients, notably plant sterols (also known as phytosterols), have been shown to impart these benefits, as well as provide sun protection and inflammation modulation.

## PHYTOSTEROLS

Phytosterols, especially those isolated from non-GMO sunflower oil, have compelling research as both nutritional supplements and skin care ingredients. They are also attractive to today's consumers who seek natural products and are eco- and clean-label conscious.

Phytosterols are common in nature (the most abundant are beta-sitosterol, campesterol and stigmasterol). They consist of solid complex alcohols with a similar structure and function to cholesterol; the key difference lies in the structure of the side chain. Two of the most desired commercial sources of phytosterols are soybean oil and sunflower oil, which has the added benefits of being non-GMO, soy-free and rich in beta sitosterol.

Phytosterols are commonly added to nutritional supplements and functional food for their ability to support healthy cholesterol profiles, a fact clearly demonstrated by numerous studies dating back to the early 1950s. In 2000, the FDA permitted manufacturers to use health claims stating that regular consumption of foods enriched with plant sterol or stanol esters — as part of a diet low in saturated fat and cholesterol — may reduce the risk of heart disease. Health claims are also allowed on certain foods sold in Europe, and phytosterols are one of the few nutritional compounds to be granted an approved health claim by EFSA.

In nutritional supplements, research has shown that beta-sitosterol is of particular interest to men concerned about prostate health — one review of studies on men showed that this supplement helps improve urological symptoms and flow measures. **1, 2**

For skin care applications, phytonutrients help prevent skin from drying out, and in esterified form act as an emollient. In topical products formulated to provide anti-aging benefits, emollients are necessary — they are wax-like thickening agents that retain water, promoting hydration and adding that appealing plumpness. And because of these capabilities, phytosterols are commonly and successfully used as emulsifiers in the cosmetics industry.



## GROWING DEMAND FOR SKIN CARE PRODUCTS

According to the report, “Cosmetic Skin Care Market: Global Industry Analysis, Trends, Market Size & Forecasts to 2023,” the global cosmetic skin care market was worth \$130.7 billion in 2016 and is expected to experience a CAGR (compound annual growth rate) of between 4.7% and 5.3% from 2017 to 2023.

The website [www.statista.com](http://www.statista.com) reports that the increased growth in the US skin care market is largely influenced by consumers who are demanding that their cosmetics be natural and/or organic; this sector of the market has a faster growth rate than the overall skin care and cosmetics market. In 2016, 57% of women felt that it was important to buy all-natural cosmetics.

“Anti-aging” remains a top benefit sought by women and men from their skin care products and cosmetics. This typically translates to products that reduce appearance of wrinkles, and enhance suppleness and firmness, all attributes of younger skin.

## SKIN COMPOSITION

The skin is a complex organ that receives a lot of attention by consumers — and brand marketers appealing to them. To understand how sunflower phytosterols work to enhance skin’s appearance and retain its barrier functionality, it behooves you to understand the composition of skin.

There are three key layers that comprise skin: epidermis, dermis and subcutaneous fat. The epidermal layer is the topmost and is composed of five sublayers wherein phytosterols are active:

- **Stratum corneum** (the water-repellent topmost layer that is composed of dead skin cells that shed)
- **Stratum lucidum** (found only on palms and soles)
- **Stratum granulosum** (responsible for keratin production; keratin is the key skin protein)
- **Stratum spinosum** (responsible for the skin’s elasticity)
- **Stratum basale** (responsible for forming keratinocytes that move up through to the Stratum corneum, and melanocytes that give skin its hue and cluster to form freckles)

When keratinocytes emerge into the Stratum corneum, they transform into corneocytes, which at this point are devoid of almost all water and have lost their nuclei. Corneocytes are mostly composed of keratin and serve to protect the layers underneath against environmental insults. This layer also includes fats such as cholesterol, which helps to bind water and act as a barrier. Phytosterols tend to do their best work on this layer, supporting barrier function.

## DEFINING SKIN AGING

“Aging” is often a subjective term when bandied in conversation and in marketing. But, skin aging is an activity that encompasses key reactions from exogenous and endogenous influences. Youthful skin is that which is relatively unblemished, smooth, elastic, hydrated and plump. Note: not all visually aged facial skin has wrinkles.

A lot of how and when our faces age visually is genetic. Other factors include smoking, poor diet, dramatic weight loss, sun over-exposure, and exposure to chemicals. Another key component is the decreased production of collagen, elastin and hyaluronic acid. Collagen is a primary component of skin’s connective tissue and is critical in maintaining skin’s function and its youthful appearance via volume, usually achieved by water/hydration retention.

## HOW PHYTOSTEROLS BENEFIT SKIN

Stimulating collagen production and supporting moisture retention are two key anti-aging benefits of sunflower phytosterols. Additionally, phytosterols applied in a topical product work to keep the structural integrity of the cell membrane which helps to reduce inflammation in the skin, improve skin metabolism, and support moisture retention. More specifically, phytosterols contribute to the lipid structure of the Stratum corneum, which provides the following benefits:

- Increase barrier function
- Manage inflammation
- Improve hydration
- Help promote healing
- Provide antioxidant protection

Research has revealed collagen-restoring abilities of phytosterols.

For example, an in vitro study found that skin cells exposed to phytosterols stigmasterol and beta-sitosterol showed lower levels of enzymes that degrade collagen, which resulted in increased collagen secretion. **3** This means that these phytosterols can help skin retain its youthful appearance, allowing it to withstand wrinkle development.

Beta-sitosterol is an excellent addition to sun care formulas (during and after), as it helps support skin inflamed by sun exposure (sunburn). It also has been shown to provide relief of atopic dermatitis, and even helps accelerate healthy wound repair, scar reduction, and in improving barrier function (the skin's ability to retain moisture.) **4, 5, 6, 7**

Other phytosterols found in sunflower also help provide protection against sun-induced inflammation, as well as to promote healthy collagen production.

## APPLICATIONS

Because phytosterol esters are such attractive emollients that also deliver anti-aging benefits, they are applicable for a range of beauty products — eye serums, moisturizing lotions and creams for face, body and feet, makeup foundations with UV protection, cleansers and exfoliants for body and face, and also shampoos and scalp conditioners. Even color cosmetics such as eye shadows and lipsticks can include phytosterols.

Typically, our formulation experts have found that between 0.5 to 2% phytosterol esters are viable for use as an emollient, barrier repair agent and inflammation-control substance in skin care products. For color cosmetic formulation, the range is between 2 and 3%.



## INTRODUCING SUNVASTEROL™

According to a September 2017 survey of women by the global information firm The NPD Group, approximately 50 percent of respondents said they actively seek products containing natural or organic ingredients. This statistic validates an earlier survey, “Green Beauty Barometer” (Harris Poll) performed in summers of 2016 and 2017, which revealed that nearly 60% of women age 35 and older believe it is important to use beauty products that are fully “free from” — parabens, fragrance, phthalates, sulfates and gluten, and this number increased to 73% of millennial respondents.

Sunvasaterol Ester perfectly suits these attributes that women are seeking in their beauty/skincare products. Produced exclusively from sunflower and consisting of concentrated phytosterols esters, mainly beta-sitosterol. Sunvasterol™ is also vegan and non-GMO, as well as non-allergenic (no soy, tree nuts, wheat or animal products). Further, two factors that are trending strongly in skin care and cosmetics in 2018 are “toxic-free preservatives” and “free-from,” according to leading skin care/beauty trade magazine, *Happi* (Rodman Publishing, New Jersey). Sunvasterol Ester satisfies both demands.

According to the *Cosmetic Ingredient Review Report* (January 2014), Sunvasterol Ester can be safely used as a skin conditioning agent, hair conditioning agent, viscosity increasing agent, skin protectant, and antioxidant. According to UE 257/2006 they are included in approved inventory for cosmetic products as an emollient.



## CONCLUSION

Globally, individuals are photographed more than ever in history — smartphones are the new portrait photographers, and we can be on video in a flash. Therefore, how we appear to others in person and on social media is more important than ever. Showcasing clear, glowing and healthy skin goes a long way to boosting self-confidence. And as more people continue to demand that skin care and cosmetic products are clean-label, Sunvasterol Ester delivers what the consumer not only desires but deserves: support of healthy, youthful skin so she (and he) can put their best faces forward.

## REFERENCES

- 1 Wilt, et al. “Beta-sitosterol for the treatment of benign prostatic hyperplasia: a systematic review” *BJU Int.* 1999 Jun;83(9):976-83.
- 2 P R Berges, et al., *The Lancet* 345, 1529-1532 (1995)
- 3 N.-R. Han, et al. “The  $\beta$ -sitosterol attenuates atopic dermatitis-like skin lesions through down-regulation of TSLP,” *Exp. Biol. Med.* Maywood NJ, vol. 239, no. 4, pp. 454-464, Apr. 2014.
- 4 E. S. Ang, et al. “Evaluating the role of alternative therapy in burn wound management: randomized trial comparing moist exposed burn ointment with conventional methods in the management of patients with second-degree burns,” *MedGenMed Medscape Gen. Med.*, vol. 3, no. 2, p. 3, Mar. 2001.
- 5 B. S. Atiyeh, et al. “Improving scar quality: a prospective clinical study,” *Aesthetic Plast. Surg.*, vol. 26, no. 6, pp. 470-476, Dec. 2002.
- 6 B. S. Atiyeh, et al. “Scar quality and physiologic barrier function restoration after moist and moist-exposed dressings of partial-thickness wounds,” *Dermatol. Surg. Off. Publ. Am. Soc. Dermatol. Surg. Al*, vol. 29, no. 1, pp. 14-20, Jan. 2003.





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