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REVIEW ARTICLE

Advanced Skin Care – A Novel Ingredient



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Abstract The skin provides the human body with protection and a major barrier to environmental assault. Caring for skin is sometimes an afterthought. In other words, if something isn't broken, don't fix it. However, in the case of the integument, nothing could be further from the truth. Intact skin is paramount to health and well-being. This article will review skin care, specifically, advanced skin care, uncovering novel ingredients, and their importance for prevention and treatment as well as delving into the caring for the skin from the outside in.

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The concept of advanced skin care was introduced in 2003 by Fleck and McCord¹ as a discourse into the newest technologies available for skin care and maintenance. Their findings distinguished that the science of skin and wound care product research has expanded drastically since the introduction of the field of immunodermatology in 1963.² This radical movement discarded the belief that the skin was a resolute barrier to the environment. The stratum corneum, the outermost layer of the skin, is now considered to be one of the most significant factors involved in dermal health. After Fleck and McCord brought attention to the gamut of the skin care revolution, a plethora of new discoveries have been made that have broadened the scope of the field. One of the most promising novel ingredients for skin care is derived from the Amazonian cupuacu fruit.

A Novel Emollient

Cupuacu Butter, also known as *Theobroma grandiflorum* seed butter, from the Cupuacu Tree is found in

Northern Brazil in the Amazonian rain forest. The pulp of the fruit that the tree bears provides cupuacu butter (see Fig. 1). It is a modern plant-based alternative to antiquated lanolin, which is a major sensitizer and produces untoward allergies and side effects in many individuals.³ Cupuacu's ability to penetrate the skin quickly (transdermal penetration), and then retain moisture, is unparalleled and far superior to shea butter or lanolin⁴ (see Fig. 2). A simple water absorption study was performed in the lab. Water was added to each of the following: cupuacu, shea butter and lanolin, with stirring, until separation was observed. Cupuacu could support 440% of its weight in water, which means that 1 kg of cupuacu butter could absorb 4.4 kg of water under stirring before any division of phases was noted.⁴ Cupuacu butter offers the capacity to attract 440% more water allowing it to function much more effectively as a skin hydrator and plumper.^{3,5}

Cupuacu butter is an excellent emollient that restores elasticity to the skin while providing anti-oxidants and hydration.^{6,7} It is considered a "super-moisturizer" because of its hydrophilic (water-loving) properties. As it carries water to the skin it makes skin supple, soft and more elastic.^{7,9} This deep hydration makes the skin smooth and soft to the touch. Nature could not have provided a better

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Figure 1 Cupuacu fruit and pulp.

solution to dry, sunburned or aging skin. Though it's not recognized as a sun protection factor (SPF) by the Food and Drug Administration (FDA) Monograph, cupuacu butter is well known for its ability to absorb damaging UVA/UVB rays for natural sun protection.^{8,9} This is important to the skin and wound care realms in that one of the most important extrinsic factors in accelerated skin aging is solar ultraviolet radiation (UVR). Epidemiological and clinical studies have identified excessive sun exposure as a primary causal factor in various skin diseases including, premature aging, inflammatory conditions, melanoma and non-melanoma skin cancers.^{10,11} A series of deleterious biochemical reactions occur within the skin when it is exposed to excess UV radiation; this process is referred to as photoaging. Chronic sun exposure damages the dermal connective tissue and alters normal skin metabolism. In addition to depressing immunity, and stimulating oxidative stress and inflammation, UV radiation increases the production of *matrix metalloproteinases* (MMPS), enzymes that degrade collagen.¹² The destruction of collagen is a major contributor to the loss of skin suppleness and structure that occurs with advancing age.

Cupuacu is a butter that performs like many of the active ingredients as defined by the FDA, delivering true healing, and restructuring benefits, to the skin as it improves the skin's moisture barrier and offers true hydration for improved

elasticity and anti-inflammatory activity. Cupuacu butter, also known as Manteiga de Cupuacu in Portuguese is prized for its rich content of phytosterols, or plant sterols (phytosterols combat free radicals.), to benefit dry, damaged skin and polyphenols to combat free radical damage and fatty acids to protect and moisturize the skin.¹³ Like the fruit, cupuacu butter contains powerful anti-oxidants and phytosterols which may have anti-inflammatory effect on the skin.⁶ These powerful anti-oxidants (especially beta-sitosterol) have been used to treat dermatitis and stimulate the healing process. Many use cupuacu butter to help treat conditions such as eczema and psoriasis.¹³ The fatty acids contained in cupuacu butter protect and moisturize the skin. This healthy fat has been used for centuries by the people of the Amazon to treat skin condition, heal the skin from the sun's harmful rays and restore one's natural beauty.

Cupuacu butter is comprised of long-chain fatty acids that are actually triglycerides which hold a perfect balance of saturated and unsaturated fatty acids that give cupuacu butter a low melting point (approximately 86°F).¹⁴ This is why it is quickly absorbed into the skin on contact. Cupuacu butter works on the cellular level. In addition to regulating the balance of water, cupuacu butter helps regulate activities of the lipid layer within the skin. It has been used widely in cosmetic products and now some of the newer skin care products available in hospitals, long-term care facilities and home health care incorporate this unique ingredient.

A recent study performed in 127 bed long-term care facility showed that an advanced skin care regimen utilizing a cupuacu Butter cleanser, moisturizer and protectant had the following positive outcomes, 86% decrease in xerosis, 55% decrease in skin tears, 45% decrease in physician-ordered treatment for denuded skin.¹⁵ These results are promising for the future of cupuacu in the field of skin care!

Helpful Websites

American Academy of Dermatology's Aging Skin: <http://www.skincarephysicians.com/agingskinnet/BasicFacts.html>.

OTC Skin Protectant Drug Product monographs: <http://www.fda.gov/OHRMS/DOCKETS/98fr/FDA-2008-N-0387-gdl.pdf>.

Water Absorption Comparison

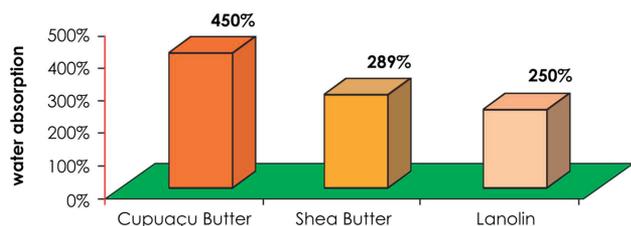


Figure 2 Water retention capacity.

References

1. Fleck Cynthia, McCord Darlene: The Dawn of Advanced Skin Care September/October. Extended Care Product News; 2004. p. 33–39. [Print].
2. Bos JD, editor. Skin Immune System (SIS): Cutaneous Immunology and Clinical Immunodermatology 3rd ed. Boca Raton, FL: CRC Press, 2005. p. 4.
3. Jacob SE, Al J: Skin and Aging. January 2005. p. 25–26.
4. Beraca: Rain Forrest Specialties; Data on File – Brazil. 2013.

5. Study of Water Absorption of Cupuacu Butter (data on file), Shea Butter and Lanolin. Santa Barbara D'oeste, Brazil: Beaca Sabara Lab; 2007.
6. Yang H, Protiva P, Cui B, et al: New bioactive polyphenols from *theobroma grandilorum* ("Cupuacu"). *J Nat Prod*. 2003;6:1501–1504.
7. Nogueira ACS, Haake H-M, Sales S, Henrique J. Performance of Cupuassu products in hair and skin care applications. Skin Care Forum BASF – The Chemical Company: 1–7. Accessed from: www.skin-care-forum.basf.com.
8. Chlebarov S: Die Kosmetischen Eigenschaften der Phytosterole. *TW Dermatologie*. 1990;20:228–237.
9. Winkler A: Experimental studies of effect of water content of upper layers of human skin. *Arztl Kosmetol*. 1977;7:65–77.
10. Chang NB, Feng R, Gao Z, et al: Skin cancer incidence is highly associated with ultraviolet -B radiation history. *Int J Hyg Environ Health*. 2010;359–368.
11. Schmitt J, Seidler A, Diepgen TL, et al: Occupational ultraviolet light exposure increases the risk of development of cutaneous squamous cell carcinoma: a systematic review and meta-analysis. *Br J Dermatol*. 2011;291–307.
12. Taihao Quan, Qin Z, Xia W, et al: Matrix-degrading metalloproteinases in photoaging. *J Investig Dermatol Symp Proc*. 2009;14:20–24.
13. da Silva MB, da Silva JP, Sirleide Pereira Yamano S, et al: Development of natural culture media for rapid induction of *Fonsecaea pedrosoi* sclerotic cells in vitro. *J Clin Microbiol*. November 2008;3839–3841.
14. Cupuacu Butter MSDS. http://www.naturalsourcing.com/msds/MSDS_Cupuacu_Butter_Ultra_Refined.pdf.
15. Moore, M. Facility Shows Positive Outcomes When Cupuacu Butter Products, Prevention System in Place and Skin Team Established and Used, Poster Presented at *Wild on Wounds* Conference, September 13–24, 2012, Las Vegas, Nevada.